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Park and Cemetery and Landscape Gardening

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See Page VIII

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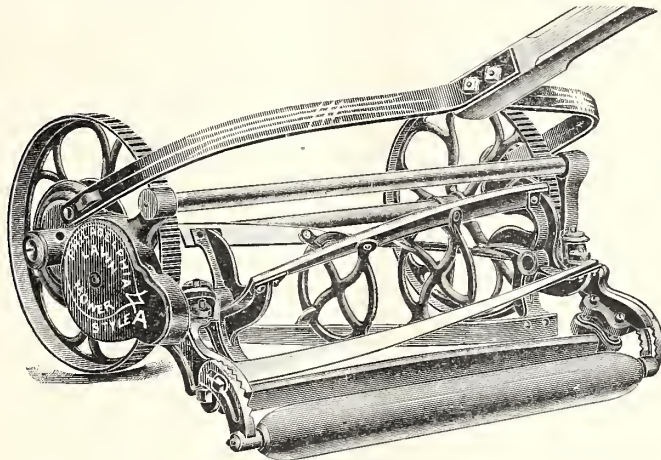
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For Spring, 1913
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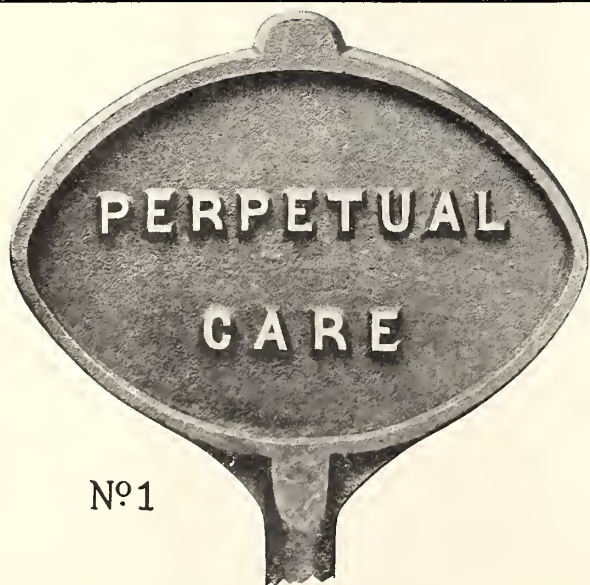
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No 1

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Here is what Rose Hill Cemetery, Chicago, says about them:

"Please find our order No. 367, for 250 Bronze Care Markers. The same pattern you delivered to us last September. I have carefully observed these markers and find them very satisfactory."—THOS. WALLIS, Supt.

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PARK AND CEMETERY AND LANDSCAPE GARDENING

VOL. XXIII

MARCH, 1913

No. 1

EDITORIAL

Legal Delays to Park Progress

Legal difficulties, accompanied by the usual number of hampering whereases, have recently arisen to delay important park plans in several cities. In Chicago a citizen has filed legal proceedings to prevent a bond issue of one million dollars by the West Park Commissioners after the proposition to issue the bonds had been approved by the voters in the district in 1910. He asks that the County Clerk be restrained from paying interest or principal on any of the bonds. It is charged that the proposition was not properly submitted to and approved by the voters. It will be remembered that the outer park plan for a park reserve about Chicago was hampered some years ago by a legal technicality as to the majority of votes necessary to carry the proposition. In New York City the attempt on the part of the State to return to the original owner 32,000 acres of park land in the Adirondack Mountains, valued at \$1,000,000 and acquired in 1909 by the Forest Purchasing Board as a part of the great Adirondack State Park has been frustrated by a recent decision of the Supreme Court at Herkimer, N. Y. A contractor has been permitted to

intervene and delay the acquiring of title to a part of the land. While the matter is not of great importance, it amounts to a considerable delay in the plans for the completion of this great park system. In St. Joseph, Mo., the comprehensive park plans which are being prepared for that city by George E. Kessler have been delayed by a property owner's objections to the adoption of the report of the Prospect Park Commission on the ground that he owns property that has been illegally condemned by the commission. It is set forth that the court committed an error by admitting illegal evidence offered by the city, giving improper instructions to the commission, and in refusing to instruct the commissioners as asked by the defendant. It is also stated that the amount of damages is assessed at \$398,000 and the benefits \$397,000, so that the benefits are not sufficient to offset the damage. It is also claimed that the report was not signed by the commission. All of which technicalities matter very little to the people who want the park, but are sufficient in the eyes of the law to delay important work of park development.

Advertising the Parks

The energetic campaign being conducted to further the proposed park system in Schenectady, N. Y., suggests the thought that the public parks can be promoted by judicious advertising, just the same as any business enterprise. Schenectady has had carefully prepared plans executed by Mr. John Nolen for its proposed park system and is circulating them among the people in an illustrated folder bearing the title "A Penny a Week for Parks and Playgrounds." Mayor Lunn makes a forcible appeal in this circular for more parks and playgrounds and shows how each one of the tracts and each section of the city ought to be beautified. The arguments for parks are unanswerable, and when properly presented they always win the support and the favor of the people,

and we have no doubt this live campaign for Schenectady is going to result in a substantial betterment of its park system. In Chicago some recent efforts have been made to advertise the parks in the street cars. Handsome illustrated street car cards have been used to set forth the attractions of both Lincoln Park and the West parks. One of them bears a big picture of a buffalo, with the words in large type, "Lincoln Park Zoo—The best free show in town." Another calls attention to the conservatories in Garfield Park, which are the largest in the world. Not the least of the duties of the park commissioners and superintendents is to advertise the cause of the parks to the people convincingly and continuously.

Beautifying the Unlovely "Tombstone"

Mrs. Ella Wood Dean, authoress and horsewoman of Chicago, is at present engaged in posing for her "tombstone" for a local sculptor and has expressed in the course of a lengthy interview, accompanied by a fetching portrait, some very interesting talk on the subject of "tombstones" and "graveyards," as she is pleased to refer to them. According to the local papers, Mrs. Dean says: "People go to graveyards to weep nowadays. I believe this is wrong. My tombstone, of which I am dearly fond, represents the picture of Hope, to be surrounded by poppies and executed in bronze. Nobody will weep when they see my tombstone. They will rejoice." Without analyzing categorically Mrs. Dean's views

on her tombstone, most people probably will agree with her that the average tombstone is calculated to incite tears and mourning from anyone with refined artistic taste, and her efforts to produce a beautiful memorial for her family lot is certainly a worthy one. Says Mrs. Dean further: "It is much more comfortable lying beneath a lovely tombstone." And she might have added, it is undoubtedly much more comfortable and pleasant for the people to pass through a cemetery and look at it. Cemetery people should certainly welcome this effort of Mrs. Dean to make the family monument of commerce a thing of joy. We anticipate with great pleasure a visit to the cemetery when Mrs. Dean's "tombstone" is completed.

Consolidating the Chicago Parks

We have with us again this spring the long familiar proposition of consolidating the three park systems of Chicago into one. Mayor Harrison has sent to the City Council a new bill for the consolidation of the three local park systems under the jurisdiction of the city government. He proposes this as a substitute for the bill already approved by the Council and sent to Springfield as the city's bill. The first park consolidation bill was pre-

sented as a part of the new charter bill which was defeated some years ago. This, it is claimed by the Mayor, provided for the assumption of the obligations of the parks by the city without providing for an adequate system of raising revenue to take care of such additional burdens and without increasing the debt limit of the city. The Mayor's new bill is designed to correct these financial discrepancies.

PARKS AND PARK WORK

DEVELOPING A NEW PARK IN AKRON, OHIO

Last year the city of Akron, O., acquired a very desirable addition to its park system in the gift to the city by Mr. F. H. Mason of a tract of land of 23½ acres, beautifully situated along the valley and on both sides of the Little Cuyahoga River,

in the north section of the city, to be devoted especially to playground uses and to be known as Elizabeth Park, in memory of the deceased daughter of the donor.

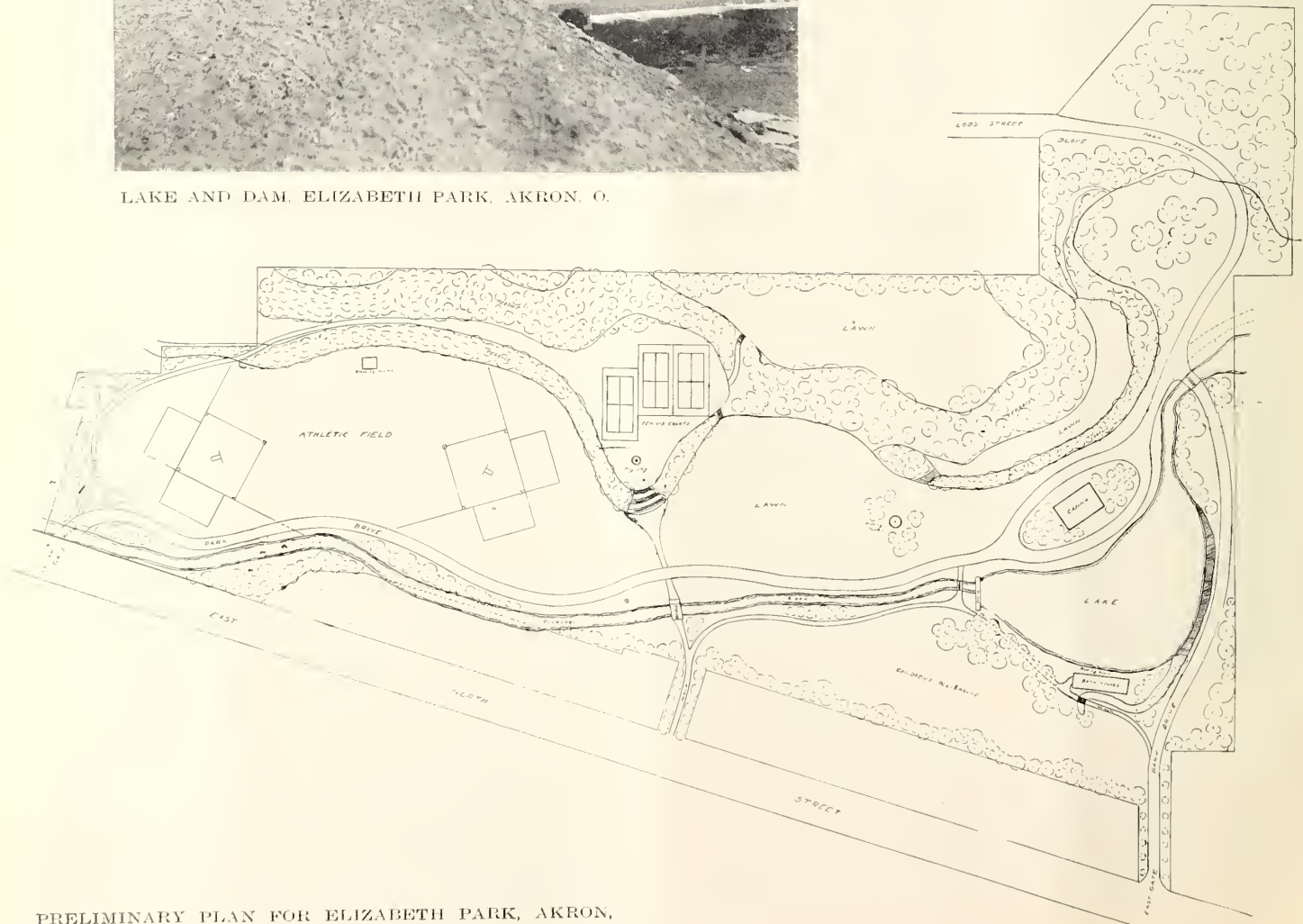
The gift carried with it an appropriation of \$3,000 annually for three years if

met with equal amounts by the city to defray cost of development, and was so accepted by the City Council, and work was begun the last of April. Since that time Mr. Mason's enthusiasm and generosity has prompted him to anticipate his donation and advance money in excess of the total appropriation to permit of all possible improvement this year. Consequently the park department has been able to execute most of the important features included in the plan of development as prepared by Park Superintendent Rose.

The land was in a very rough shape, with prominent and rapidly changing contours, though the conditions were providential for the work of permitting all material from cuts and excavations to be used



LAKE AND DAM, ELIZABETH PARK, AKRON, O.



PRELIMINARY PLAN FOR ELIZABETH PARK, AKRON, OHIO.

in grading and obviating the necessity of buying or hauling material from elsewhere. A point of hill partially divided the property and required to be removed, at the same time affording the necessary material for grading the athletic field. About 10,000 cubic yards of the hill was cut away for the purpose of making a field 650 feet long and 250 feet wide along the river for baseball, football and running track.

Beyond this field a dam has been built in the river and over 5,000 cubic yards of dirt excavated to make a lake of over an acre in extent and four feet deep, with bathing beach on one side.

This material was mostly fine gravel and cobblestone and is being used to construct the park drives.

Along the shore of the lake is located the children's playground, with full equipment of apparatus, swings, see-saws, giant strides, children's slides and sand gardens. A 65-foot flagstaff has been erected on a high point midway of the park.

The cost of development so far carried out has amounted to \$13,000, and a steel bridge, already ordered by Mr. Mason for the main entrance drive over the river, will cost \$2,500 more.

Shrubs and trees to the amount of about

\$1,000 will be planted this fall on the completed areas.

Further improvements to be made next year will include bath houses and field house for the children's playground, dressing room for the athletic field and a casino or refectory situated in a beautiful locust grove existing on opposite side of lake from the playground.

The acquirement of this park is a splendid acquisition to Akron's park system, located, as it is, in a large section of homes of the working class, and benefits the families and children who of all most need such privileges and pleasures.

OFFICIAL COMMUNICATIONS

JAMES B. SHEA, Boston, Mass., President



AND CONTRIBUTIONS

J. J. LEVISON, Brooklyn, N.Y., Sec.-Treas.

ASSOCIATION EMPLOYMENT BUREAU

The Secretary's office has been notified of several worthy park men who are looking for opportunities to better themselves. These men are well recommended by members of this association. Those looking for positions in park work or those wanting reliable men may find the Secretary's office as a medium, and this "Employment Bureau" is to be a regular feature of this department. Communications regarding vacancies open or positions wanted are invited for this Bureau:

"I am looking for a florist to work in the three glass houses, 20x50 each, do the propagating, planting out the bedding plants, keep the place in order, and do such work necessary on public grounds. I would prefer a man of 30 years or over, who has received his training in Europe. The glass houses are in Gage Park, outside of the city. The position pays \$2 per day

and is open now."

E. F. A. REINISCH,
Supt. of Parks.

Topeka, Kan.

(1) Applicant desires a position as city forester. Is about to graduate from a technical school of forestry of high standing.

(2) Applicant desires a position to do tree work. Is at present in charge of a cemetery near Philadelphia; claims to be a landscape engineer of long experience, having executed plans prepared by Olmsted Brothers and others and having worked for several firms in the vicinity of Philadelphia.

(3) Applicant is at present employed by a forestry firm of the East; has been working for the Pennsylvania Railroad Co. and is a graduate of a technical school of forestry. Desires employment in the care and planting of trees.

THE ASSOCIATION QUESTION BOX

For Better Horticultural Education.

J. J. Levison, Secretary, American Association of Park Superintendents, Brooklyn, N. Y.

Dear Sir:—Referring to your communication regarding topics under discussion in our paper, I suggest the following:

That the matter be brought up of arranging for better horticultural and floricultural education in our states. It has been observed, and is a well admitted fact, that in employing help and also in the appointments of superintendents, for private or municipal purposes, chances have been taken in the selection of such persons. In

a great many instances politics and personal favoritism play a more important role than qualification.

Where florists and professional gardeners are to be employed, it is usually the most importunate man that gets the position sooner than the more modest applicant who knows his business.

The results are that entirely unprofessional men are filling the places which rightly belong to the competent gardener. Such conditions are a detriment to the vocation and an insult to the professional man.

In my opinion our association should

act as a Board of Qualification and issue certificates for efficiency by examinations.

The best men of our association should be named as examiners and hold regular sessions for this purpose, being compensated either by the state or government. A decided service could be rendered to the country and an elevating influence that would honor our profession.

Municipalities and private parties would then insist upon the applicant being qualified by the Board of Examiners and many disappointments would be averted and political influence would be eliminated.

I hope you may find place in your paper for these suggestions, and still more I hope that such plans may be speedily realized.

N. BYHOWER,
Supt. of Parks.

Salt Lake City, Utah.

Dates for Denver Convention.

At the meeting of the Executive Board of the association, held February 19, the principal business was the setting of the date for the next meeting of the association at Denver, Colo. It will take place on August 25, 26 and 27. In selecting these dates we have taken special notice of the meeting of the florists at Minneapolis, which is to be held during the week previous, and we selected our dates so as to give the members interested in the other a chance to visit both without interference. Other business of marked importance included the consideration of new applicants wishing to join our association and the consideration of minor details in connection with the meeting at Denver.

The Eastern members also met at the same time and selected Mr. Hermann Merkel, of the Bronx Zoological Garden, as the presiding officer for the afternoon. President James B. Shea presided at the meeting.

J. J. LEVISON, Sec.

NEW TYPE OF PARK MEMORIAL SCULPTURE

J. Massey Rhind, the New York sculptor, has but recently completed an heroic bronze statue of Washington standing beside his horse with his hand on the neck, holding the reins, in a pose which he believes to be unique in equestrian figures, and which is yet statuesque and entirely natural. This monument, which stands in Washington Park, Newark, N. J., at the corner of Washington place and Broad street, was lately unveiled as the second of a series of public monuments for the embellishment of the city of Newark provided for by the will of the late Amos J. Van Horn, a dis-

tinguished merchant of that city, who left in his will the sum of \$150,000 for that purpose. There still remains of this sum enough for further important works. In Mr. Rhind's group the figure of the Father of his Country is some ten feet in height; he stands in full uniform, his sword by his side and his heavy military cloak hanging from his shoulders, draped loosely behind him. With his right hand he still keeps control of his horse, which paws the ground as if impatient at the delay; his left hand rests on his hip and the hilt of his sword, and his face is turned on the

spectator standing in front of him. The whole group is erected on three great granite steps on the summit of a grassy eminence in the shape of a five-pointed star seventy-five feet from point to point and twenty-five feet in height. The man and horse and plinth were cast by the Roman Bronze Works.

The group has been set on a turfed mound in a very impressive location on the parkway, and is a fine example of the more intimate treatment of our park memorials and sculptures, and of the effort to blend them more harmoniously with the park landscapes.

RELATION OF SCULPTURE TO PARKS AND BUILDINGS

An address before the American Institute of Architects, by Herbert Adams, sculptor, of New York City.

I am conscious that it is an honor to have been asked to speak before this body on the subject of the "Relation of Sculpture to Parks and Buildings," but I should be dull indeed if I did not recognize that many of you are more competent to do so than I am. I should, therefore, feel less embarrassed if my audience were composed of committeemen and commissioners interested in erecting statues and monuments, rather than of architects.

First, I will speak of the relation of sculpture to our parks. As a sculptor, possibly I am expected to believe that parks should be bountifully supplied with examples of our art; but, as a matter of fact, I feel that the naturalistic park can get along very well with little from our hands—can be spared to advantage even the bronze panther crouching on the cliff, half concealed in the foliage.

In this country, I believe, we are far too prone to place the statue of our hero or our honored citizen on the sloping bank hard by the popular drive or walk in the naturalistic park, to surround the pedestal with a mound of bedded plants, and then to rest secure in the satisfaction of having at once honored the dead and beautified nature. Perhaps we have dragged a rugged boulder to the lawn, mounted our hero on that, and then congratulated ourselves that we have been very artistic, while, as a matter of fact, we have only been avoiding the architect, or, rather, the cost of executing his design for a setting.

The boulder idea in general I believe is one to be persistently discouraged; it is very contagious; it is one which has troubled the Art Commission of New York not a little. Had there been no restraining hand in this direction, I fear that the important drives in Central Park and Riverside Drive would have been lined ere

this with boulders bearing bronze tablets; or perhaps there would have been only the boulders left, for there are individuals in that city who seem to have the idea that bronze as a metal has high value, and they frequently attempt to remove accessible tablets without consulting the authorities. It is indeed surprising what care must be used in fastening a tablet so that it cannot be removed by an ingenious vandal, even in the heart of a great city.

Certainly I believe that sculpture may be successfully used in connection with the naturalistic park; but this will be accomplished, not by dropping it down here and there, with reference solely to its conspicuous placing, but rather by treating some spot or portion in the park in a reasonably formal manner, and using sculpture in connection with such treatment. In fact, it seems to me that the approach or entrance to the naturalistic park offers especially good opportunity for the sculptor; indeed, if properly designed, it affords ideal possibilities for the sculptor's art. I believe the approach could be designed so that it would present a satisfactory ensemble before all or perhaps any of the sculpture was in place, thus providing suitable sites for the sculpture of the future. Of course, the general character of the sculpture which was to be added would have to be worked out with the general scheme, and safeguards taken that this scheme should be adhered to.

Think what it would have meant to New York City if Hunt's scheme of twenty monumental gates for Central Park had been realized! These gates were to have been known as the Merchant's Gate, the Scholar's Gate, the Artist's Gate, the Woman's Gate, the Children's Gate, etc.

It would be impossible for one who

has never attempted to find a suitable place for a statue in a city like New York to imagine what a blessing such a scheme, intelligently carried out, would have been. With our congested streets running at right angles to each other, with our small parks laid out in winding paths and in irregular beds, with our big parks sacred to the landscape idea, the problem of locating monuments in our city is a most difficult one.

We sculptors, therefore, beseech you, as designers of American cities, to give a little thought to the sculptural monuments of the future when you are planning parks, avenues and civic centers. You probably realize, quite as well as I, the importance of the setting and surrounding of works in sculpture—that a work of no extraordinary intrinsic merit is sometimes made impressive and important by its setting, while a work of high artistic quality may utterly fail to give its message, purely because it lacks the advantage of suitable setting and location.

It would be presumptuous indeed on my part to attempt to explain to you what constitutes a good setting or a good location for sculpture, or how a city square or park should be treated to provide for sculpture.

There is one essential point, however, which in general has been more fully appreciated by the sculptor than by the architect. This is the rather universal importance of having the sun back of the spectator when he is looking at a statue. If a statue which stands in the open is between the sun and the spectator, of course all modeling is wiped out and silhouette alone is seen. The sculptor, therefore, likes to face his work south whenever possible, and is particularly unhappy whenever it has to be faced north.



NEW TYPE OF EQUESTRIAN WASHINGTON AT NEWARK, N. J.; J. MASSEY RHIND, SCULPTOR.

In locating a public work in sculpture, especially whenever it takes the form of a memorial, there is one element which often prevents the best result, in the broadest sense of the word. This difficulty is the desire, on the part of the promoters, and often, I regret to say, on the part of the authors, to have the work given a position where it will be seen by the largest number of people, a desire which sometimes warps the judgment. This is one of those elements in human nature that makes no end of trouble for the Art Commission of New York. The promoters of nearly every monument or statue ask first for one of these four sites: City Hall Park, Union Park, Madison Square, the Plaza. The policy which has been pursued for so many years has pretty well discouraged people from trying to get their monuments into Central Park, but there is a constant demand for the other places; everyone seems to feel that his monument has some special fitness for one of these sites.

Remembering many instances of this sort, I am not sure that we sculptors are the best judges when it comes to the placing of our own works, any more than the doctor is the best physician for his own family. To illustrate my point, we have in New York a noble monument, made some thirty years ago by a great sculptor and a great architect. I have reason to believe that they had a comparatively free hand in placing that monument. That was before the days of troublesome art commissions. I know that they considered the location long and earnestly, yet I believe the work is not generally conceded to be ideally or even well placed, unless from the standpoint of conspicuousness. The letters from the architect to the sculptor in regard to this matter are most interesting. In one of these he writes: "I have been to see that site at least fifty times! Sometimes I think it is a bully site, and the next time I go there I think it is a rotten place for a statue." I believe it was the conspicuousness of the position which, unconsciously perhaps to the authors, made them take the site the work now occupies.

I feel still more embarrassed, if possible, in speaking to architects of the relation of sculpture to their buildings. Of course, we all know the importance of having the sculpture suitable to the style of the architecture and the purposes of the building; of having it in proper scale, and of placing it so that it shall not be seen in too violent perspective.

It seems to be a rather difficult problem to determine the right size for a statue or group which is to be placed upon or in relation to a building, without trying a model on the complete structure, and, of course, this is often, in fact, usually impossible. In case of a relief where there is no great projection, the architect's drawing is very helpful in determining the proper size, but

for a figure in the round, especially when placed at some height, I know that often, when the work is executed of a size that appears right in the drawing, either elevation or perspective, the result is a surprise. When a model is made of the entire building, the scale is usually so small that the suggestions for the sculpture are too crude to be really of much value. On the other hand, the sculptor is inclined to make his studies for his part of the work at a scale so large that only the immediate surroundings of the architecture can be shown in the model, and, of course, these by themselves are of little value in considering general proportion. From my own experience, I think that the most practicable way of determining the scale is to make a model of a considerable portion of the building and sculpture at, say, a $\frac{3}{4}$ -inch scale. Then, with the eye in the same relative position in which it will view the completed work, care being taken to cut out of vision everything except the model, I believe a fairly true idea of the effect may be obtained.

In planning for sculpture in the interior of buildings, the question of lighting is often left unconsidered. Everyone knows that a painting must have a good light to be properly seen, but few seem to perceive that it is even more important, if possible, that sculpture should be properly lighted. Without its light and shade, sculpture has nothing left but its silhouette, and in case of a relief, or of a figure against a background of the same color, even the silhouette is lost.

Usually the light most favorable for sculpture is from above, but we are thankful if we can get it from any one direction, so long as it does not hit us bang in the face from low down, as is the case when sculpture is placed opposite an entrance, with a confused light coming through the doorway.

The sculptor often feels that the architect is too indifferent to the quality of the sculpture with which the building is to be decorated. I am aware, on the other hand, that the sculptor is liable to forget that his work is only a small part of the whole design, and that it is more important that it should strike the proper note in the entire composition, than that it should be exquisitely modeled or that it should in any way exploit his personality, with intent to dominate.

Personally, I believe that there is a great field in decorative sculpture, and in this I include both figure and ornament. I think that neither the sculptor nor the architect is doing his full duty in this matter. I think we both feel that much of the so-called decorative work is sadly lacking in artistic merit. How could it be otherwise under the conditions in which it is usually made? The architect replies, "Yes, but you figure sculptors don't understand deco-

rative sculpture, particularly ornament; you consider it beneath you." I admit that most of us are not facile in decorative work; but, for myself, I believe that there may be just as much art in designing an exquisite border or panel from a wild grape vine as there is in designing the portrait of a great man or a beautiful woman. But it requires not only skill and feeling, but study; it cannot be turned out by the yard.

I feel that the chief difficulty here is that the artist-architect and the artist-sculptor have not been in close enough touch with each other. The Society of Beaux Arts Architects and the National Sculpture Society have recognized this, and have seen the need of having our decorative sculpture executed by better trained men. They have joined hands and formed an atelier where students and men employed in modeling shops may study, not simply under the instruction of the decorative modeler, but under the criticism of the architect and the sculptor. It is an interesting experiment and should do good. I was much interested in what Mr. Cram said this morning as to the need of better Artist Artisans.

Before we can ever compete with Europe in the skilled trades I believe that generously supported industrial art schools are an absolute essential.

They should have the hearty sympathy and support of the Artist, the Manufacturer, the Community, and of the *State*. It is the duty of each one of us to try to make our educators, our manufacturers and our legislators realize the economic value of such institutions.

The importance of bringing architect, painter and sculptor into a closer sympathy with each other, and giving them a clearer conception of each other's work, was recognized by McKim when he conceived the plan of the American Academy in Rome. The value which this institution will eventually be to this country is at present not fully appreciated. The influence which it is destined to have on the art of America I believe to be of the greatest importance.

Of course, the Academy will never be great in point of numbers of students there at any one time; this is neither intended nor desired. But they are picked men—men who have learned their trade, so to speak, but still are not beyond the receptive age. They not only see each other's work, but they live under the same roof; they eat together, they discuss together, they visit masterpieces of antiquity together. This is but incidental, but it is no less valuable than is their working out together problems which involve the three arts. In the great work of bringing together into harmonious relationship the work of architect, painter and sculptor, I know of no institution, no influence destined to do as much for us as will the American Academy at Rome.

PARK NEWS.

Superior, Wis., is to have a new park, to be known as Stockade Park. It will include the spot where the old stockade stood which was used at the time of the Indian disorders in 1862.

A children's playground will be established in Cotton Palace Park, Waco, Tex.

A measure to permit the state of Iowa to deed to the city of Burlington Otter Island, an island in the Mississippi River lying about three miles north of the steamboat landing, has been introduced in the legislature. It is three miles long and in parts one mile wide, and will make a unique addition to Burlington's park system.

There is a strong prospect of a new park for Milwaukee, Wis. The Board of Estimates is looking into a proposition to purchase the Kneeland property on Grand avenue, between Tenth and Eleventh streets.

A park is to be established by the state of New Jersey at the spot where General Washington made his historic landing when he crossed Delaware River the night before the battle of Trenton. It will contain about 300 acres, and it is hoped to be able to enlist Congress in aid of the proposition.

Nine acres of land, valued at \$2,000 an acre, have been presented to the Board of Park Commissioners of Louisville, Ky., to be added to Cherokee Park. It is the gift of Mr. and Mrs. Frank Fehr, and the commissioners have formally accepted it.

The Davenport, Ia., Park Commission has been considering the purchase of the Knostinan-Petersen Furniture Co. property and the Davenport Woolen Mills Co. property in East Davenport for park purposes.

Representative Henry O. Bernbrock, of Waterloo, Ia., has introduced in the house of the Iowa legislature a bill which would give every city the right to create a shade tree commission and compel uniformity in planting of trees and varieties along the various streets.

Glens Falls, N. Y., is likely to have a children's playground the coming summer.

Canon City, Colo., is agitating the question of including the Royal Gorge in a mountain park of some 6,000 acres. It will make a most beautiful and elaborate addition to park propositions.

Memphis, Tenn., parks and park equipments are valued at \$6,302,183.32, with excess of assets over liabilities of \$5,560,152.62, according to a recent report. The value of buildings is given as \$119,452.08, and equipment, including furniture, implements, wagons, livestock and zoo, \$39,873.80.

Pennsylvania is to follow in the footsteps of New Jersey in establishing a public park or other memorial to mark the place where Washington crossed the Delaware river on that Christmas Eve in 1776 and routed the British allies, the Hessians, in the battle of Trenton. The famous passage across the ice-clogged river was made at a point about six miles north of Trenton. The landing place on the Jersey side is known as "Washington's Crossing," while on the opposite side of the river, on Pennsylvania soil, is the town of Taylorsville.

The tenth annual report of the Park Commissioners of Lowell, Mass., for 1912, gives a park area of just over 136 acres, comprising four parks of between 11.39 and 56 acres, and 26 small plots. Their valuation is \$658,976. The first Park Commission was appointed in 1903, and the average annual appropriation for the care of the parks since that time has been \$13,054.40. Stress is laid on the need in Lowell of a City Improvement Commission to prepare a comprehensive plan of park development for the city on definite lines. The report contains very interesting matter on the playgrounds, insect pests, billboards, etc., and is quite profusely illustrated.

An appropriation of \$150,000 is to be asked of the Illinois State Legislature for the purchase of Monks Mound, an historic Indian mound between Collinsville and East St. Louis. The mound, if purchased, will be turned into a state park.

There are ten playgrounds in the city of Boston, Mass., which the Park Department wants to place in readiness for use during the coming season, and for those improvements the Park Board asks an appropriation of \$316,424.78.

Six years ago Spokane, Wash., had only some 174 acres of park land. Now the city boasts of 1,960 acres—more than three square miles—one acre for every 55 people in the town.

Kearney, Neb., is planning an extensive park system and is arranging for a bond issue of \$40,000 for the purpose.

Milwaukee, Wis., has about completed arrangements with the Northwestern Railway officials and will soon be at work on the proposed 174-acre lake front park and driveway.

The Detroit, Mich., Common Council has instructed the Commissioner of Parks to ask the estimators for the sum of \$100,000 to provide playground for Detroit. This is the most decided step yet taken by this flourishing city for a playground system.

The Park Commissioners of Buffalo, N. Y., have awarded to Townsend & Fleming, landscape architects, the contract for the preparation of the plans and specifications for the development of the property acquired recently by the city for park purposes. The parks to be embellished are Willert, Sperry, Polonia, Hennepin, Schiller, Lanigan and the Riverside park addition. It is estimated that the work will cost at least \$30,000.

According to a statement made recently at Albany by Governor Sulzer, contributions to increase by \$2,500,000 the fund to acquire and establish Palisades Park, on the Hudson River, have been promised the Palisades Park Commission.

A campaign in behalf of public playgrounds has begun in Dallas, Tex., by the Dallas Playgrounds Association. Dr. Henry S. Curtis, whose work two years ago was largely responsible for the Dallas Association, will take a hand again in the interest of the proposed bond issue.

It is highly to the interests of the state of Minnesota to gain complete control of all land within the Itasca Park boundaries, is the claim of State Forester Cox. Although the state already owns much of the more desirable timbered property, about 6,000 acres, valued at about \$300,000, is under private title, large tracts being owned by the Walker and Weyerhaeuser firms.

In a lecture recently delivered at Sioux City, Ia., by O. C. Elsager, of Dayton, O., on the playground and landscape gardening movement, he suggested that a civic association for street urchins be formed, to be governed by the boys themselves, with their garden products from the use of vacant lots, etc., as a chief source of revenue. Where this has been properly organized it has been a success.

The Board of Park Trustees of Peoria, Ill., has been upheld, by a recent ruling of the Supreme Court of the state, in its contention that "it was not obliged to keep up a street at its own expense for the benefit of the property owners. It was sought to compel the Park Board to keep up the improvements of Columbia Terrace, owing to the fact that the street had been originally dedicated to the Park Board by Lydia Bradley as an entrance to Bradley Park. The board had relinquished its claims to Columbia Terrace in 1906.

In the sixty-first annual report of Swampscott, Mass., one of the best ever presented, the Park Commission asks for \$10,550 for park purposes; the tree warden wants \$1,700, most of which is required for fighting the insect pests.

Mr. James S. Graham, president of the Flatbush Playgrounds Association, Brooklyn, N. Y., has aroused great interest in the Parents' League of Public School No. 89, on the proposition to establish and

equip play centers in the vicinity of the various school buildings throughout the borough. Mr. Graham referred to the Chicago public playgrounds, on which the Brooklyn system was almost entirely based, as being under successful operation.

Improvements and Additions.

The Boston Municipal Art Commission has finally approved the plans of the Public Works Department as drawn by Clarence Blackall, architect, for the construction of entrances to the high-pressure pumping station on the Charles street mall of the Public Garden. There will be two entrance openings, one on each side of the gateway to the Public Garden, directly from Charles street. From in front of the entrance the doorway will appear as an archlike entrance to the garden. From the rear nothing of the doorway will be seen except the curve of the top. It is planned by the Art Commission to have a liberal supply of shrubbery on the sides.

The park authorities of Springfield, Ill., are favorable to adopting more extensive gardening in the public school grounds of that city.

The development of Coggs Hall Park, Fitchburg, Mass., along extensive lines is proposed by the Park Commissioners, and to this end it is their purpose to have plans prepared by a landscape architect of established reputation.

Park Superintendent Eugene V. Goebel, of Grand Rapids, Mich., has completed plans and estimates for a swimming pool in the Godfrey Avenue Park. It is proposed to construct this municipal natatorium close to Godfrey avenue and directly across the street from the big furniture factories. An open pool being out of the question, Mr. Goebel plans to have the pool inclosed in a simple but artistic brick wall. The pool will be 75x40 feet in size. Dressing rooms for men and women will be provided and there will be eleven shower baths. Around the entire pool there will be a cement walk and every convenience will be provided for the use of the swimmers. It is estimated that the pool as outlined will cost about \$6,000.

Several hundred black Acacia trees are being planted in Huntington Park, California. These are being set out as a parking on all vacant lots and will be cared for by the tree warden, Mr. W. E. Ford, for two years.

The ladies of the Civic Club of Angleton, Tex., have been planting a lot of trees and shrubbery in the City Park and are arranging to have a band stand put in the park.

The Mothers' Auxiliary of the Davis Street School, Atlanta, Ga., is improving the playground of that school. The fund for the work is a bequest of \$500 left for the purpose by the late Mrs. Livingston Mirns.

The park authorities of Rockford, Ill., are

considering the erection of a golf house in Smississippi Park at a cost of \$5,000. The care of the birds which make their homes in Blackhawk park will also be provided for. Another progressive idea of the commissioners is that of properly labeling the trees and shrubs of the parks, a beginning in which is to be made at Fairgrounds Park.

A new horticultural building to cost at least \$100,000 is to be erected on the Fenway, Boston, Mass., or in some other of the public grounds as soon as the necessary money can be appropriated. The mayor has called upon the City Council to provide \$5,000 for plans and specifications for the new structure.

The N. E. W. Commercial and Improvement Association of Los Angeles, Cal., is asking the city to expend immediately \$20,000 on improvements to Echo Park.

Lincoln Park, San Francisco, Cal., has been closed to golfers until the links are completed. Superintendent McLaren's recommendation for a public comfort station at Alamo Square, to cost \$1,200, has been accepted by the Board of Park Commissioners.

The members of the Advisory Park Commission suggested by the Commercial Club of Tulsa, Okla., to act with the Park Board in the matter of adopting plants for improving the parks, laying out the new boulevards and other matters which the board has under advisement, have been named and have held a joint meeting.

Plans have been prepared under the direction of the Parks Commission of Worcester, Mass., by Olmsted Bros., landscape architects, Brookline, for the development of Green Hill Park, to make it more accessible for pedestrians and vehicles and to offer greater attractions for the people of Worcester. To carry out the proposed changes and improvements will require upwards of \$50,000. The main feature will be a large athletic field off Lincoln street, a new entrance to the park and an amphitheater near the mansion house.

Commissioner Charles K. Holmburg, of the Health and Civic Beauty Section, Grand Junction, Colo., has completed his plans for the improvement of the Children's Walnut Park on North Fifth street. The plans called for \$1,000 in work this year and \$1,000 next year. This will make a very pretty as well as useful park. The plans are changed from the original and have the approval of the Park Commission.

Commissioner Walter G. Eliot, of Queens, New York, has completed a report of the work life has accomplished during the past year in the parks of the borough. Commissioner Eliot was allowed by the Board of Estimates \$15,123 for his department for the year. With this sum he had to care for eleven parks and four street

triangles. In the parks there are 688.17 acres, while in the triangular spaces are .75 acres. During the year there were acquired 319 acres, the greater portion of this area being included in the former police training grounds adjoining Kissena Park at Flushing. The commissioner had sixteen gardeners and thirty-two laborers to take care of these parks.

New Parks.

The Flushing (N. Y.) Playground Association has under advisement a plan to lay out a playground in the Fowlerville section of Flushing, where the population is very dense.

A bill has been introduced into the New York Assembly at Albany asking the state to appropriate \$10,000 for the purpose of purchasing land surrounding Lake Ronkonkoma, in Suffolk County, the playground of Brooklyn and New York. It was believed up until about ten years ago that the town of Brookhaven still retained its rights surrounding Lake Ronkonkoma, but after considerable litigation the case was decided against the town and the property rights are now vested in private owners.

The City Council of Worcester, Mass., has been considering the advisability of making an appropriation to buy 123,000 square feet of land adjoining Newton Hill for park purposes.

The Woman's Relief Corps, Turlock, Cal., proposes to undertake the improvement of the park recently donated to them by Mayor Crane.

The Board of Park Commissioners of Paducah, Ky., has purchased 100 acres just outside the city limits for a new park which will be called Glenwood. The park cost \$25,000, and will be paid for in instalments covering a period of ten years.

The Oak Park (Chicago) Commission of Public Works will commence work on the suburb's new park, to be called Scoville Park, early in the spring. The park will include the ground between Lake street, Superior street, Oak Park avenue and Grove avenue.

Marblehead, Mass., is to take a part of the Graves Beach for park purposes. This is a needed improvement, as every piece of available land is bought up by private individuals. If the town had not taken this step, residents of the lower part would have lost the right to use any of the beach on account of private ownership.

A strong movement is well under way for a public park at Northport, L. I., N. Y. An available site on the West Side would furnish sites for public bath houses and a public dock.

Sioux City, Ia., is fortunate in being the recipient of a new park, a gift of the Stone estate. As the town seems to desire a zoological garden, the several lodges are interesting themselves in securing animals for starting a collection.

TREES AND LANDSCAPE GARDENING

PRACTICAL TOOLS FOR FORESTRY WORK

Since the graduates of the State Forest Academy of Pennsylvania have been in charge of various state reserves in that state they have had to solve many problems without very many instruments which have been ordinarily used in connection with forestry work. Often it was necessary to devise their own tools and try them out, in some cases taking as a basis instruments in use. In other cases, their own ideas have been worked out, and tools made which are very serviceable. Some of these instruments are destined to be of great use in the forest service of the state, and there is no doubt but that from time to time other ideas will be worked out, so that in the course of several years we will have satisfactory instruments for every phase of the work.

While at the Forest Academy, John A. Bastion perfected an instrument for measuring the height of trees, and at the same time determining the diameter of a tree at a given height. This instrument was based upon Christen's hypsometer.

Harry J. Mueller, forester on the Union County reserve, together with his ranger, worked out a kind of pruning shears with which the cost of brushing roads was reduced quite materially. They also manufactured a stone cant-hook with which to move large stones in the building of roads, an instrument with which one man can move a stone which would otherwise require three or four men to displace.

Raymond B. Winter, forester, also in Union County, designed a machine for planting acorns and various kinds of nuts, to be used especially on stony soil.

Walter D. Ludwig, forester in Centre County, perfected a practical mallet to be used in the plantings of seedlings.

W. Gard. Conklin, forester in Snyder County, had manufactured from rough pieces of steel a sprouting axe, which has surpassed the shears of Mr. Mueller in the matter of reducing the cost of brushing out roads and fire lanes. This young forester has developed plans also for a cheap and serviceable road roller and a harrow for tearing the roots and growth from roads and fire lanes.

Tom O. Beitsch, forester in charge of the Mont Alto nursery, has perfected a planting board which is equal to or will surpass the Yale planting board.

These young men are endeavoring in every possible way to reduce the cost of the labor on the reserves to a minimum. They are handicapped in the matter of expense, and to get results have to devise means whereby things can be done very cheaply. The young men are to be commended for putting their ideas into concrete form, and it is to be hoped that if they are able to improve on tools which they have, or to develop new ones for special purposes, they will not hesitate to make their success in the use of such improvements or tools known to other foresters, not only in the state, but in the United States.

Following is a description of the planting mallet as submitted by Forester Walter D. Ludwig:

"To anyone who has assisted in planting operations on a large scale, where seedlings or transplants from one to six years old are used, the need of an instrument of some sort to aid in the proper planting of trees is obvious. A suitable stone with flat face has been generally used for this purpose by the Pennsylvania foresters and

their employees. But it presents several disadvantages, such as cramping of the fingers, lack of sufficient weight and leverage, and an uneven face. To remedy these evils a planting mallet was designed and used successfully. In designing this mallet there had to be considered sufficient weight and leverage to thoroughly pack the earth about the roots of the tree with a few blows of the mallet; the fact that the head was liable to crush with continued use; that frequently roots and briars must be removed from the immediate vicinity of the hole made for the tree; and that at times in making the hole the earth is somewhat scattered and must be raked together again to be placed around the roots and to fill the hole.

"Keeping these points in view, the mallet was constructed. An iron band around the head prevents crushing and adds weight. The handle gives leverage, so that in all ordinary cases a few blows are sufficient to set the tree solidly. The other end of the mallet is edged with a piece of steel, which serves to cut away any roots or debris from the hole and pull the dirt into the hole, to be placed around the roots of the tree which is being planted. The shape of the handle is a matter of personal taste, as any style of handle may be fitted to the mallet.

"The use of the mallet is simple. The holes for the trees are made in the ordinary way with mattocks. The tree is set in the hole and the mallet held point downward. The roots and debris, if any, are cut away and the earth is pulled into the hole. A half turn of the handle brings the flat face of the mallet down and a few blows serve to set the tree. Several types of mallet were tried, but the type herein described and shown in the accompanying illustration was constructed and found to be most serviceable and satisfactory in every respect. It is economical as a time-saver and is cheap. Such mallets can be constructed in quantity at a cost of about 20 cents each. A trial in actual work with this type of mallet will demonstrate its desirability, its serviceability and its superiority. It is a necessary forest instrument in extensive field planting, and as such should commend itself to all interested in forest work."



TWO VIEWS OF PLANTING MALLET DEvised BY PENNSYLVANIA FORESTER.

EFFECTIVE PLANTING OF SHRUBS

By JOHN L. MEARNS.

The character and habit of shrubs with their low growing forms, spreading many branches, woody perennial bushes or diminutive trees, make them the most valuable family of plant life for ornamental effect for park or cemetery. Their rapid growth, compact effect, together with fruit foliage and bark, permit many uses to which trees of taller and slower growing character cannot be utilized.

Of course, successful results can only be obtained after proper planting, care and pruning. The necessity of changing grades on new layouts oftentimes buries or disposes of the fertile soils; also much of the grading is simply superficial, a mere leveling off the surface without the object of growing grass or shrubs. Therefore the proper fertilizing with manure intermixed by thoroughly spading to a depth of at least one foot of all new portions for planting is necessary. Also a mulching of manure or litter to remain over the first year should be placed on the beds to retain moisture. A regular system of hoeing to destroy weeds and stir the soil surface is an excellent means of cultivation.

Pruning is a matter to be carefully considered. Shearing should never be resorted to. The most feasible rule is to prune immediately following the flower, cutting well back to insure the new growth coming from the near base of the shrubs which are planted for flower alone. Other varieties should have the third year wood pruned close to the ground in order to encourage young wood from the base, thus avoiding overgrown, unsightly bushes as they advanced in age.

The destruction of insects and diseases are imperative. Although shrubs are susceptible to very few insects or disease, mostly of individual character, such as the Crataegus scale, affecting all the Haws and Crataegus family, the Pyrus scale, the Cydonia, Prunus, etc.; the Euonymus scale on the different Euonymus. All can be destroyed by spraying lime, sulphur, salt solution the first mild days in spring, before the buds start growing. Other leaf-eating insects can be destroyed by spraying arsenate of lead as soon as their appearance is discovered.

In order to get the desired results in planting and to aid in the proper selection of special purpose shrubs, due consideration should be attended as to what definite purpose or scheme it is proposed to formulate. For the purpose of giving a clear, concise idea of the different effects, schemes, etc., it is possible to create, the following definitions are extremely helpful. Class A, screen group to obscure some objectionable feature of the landscape, particularly an

CLASS B.

Botanical Name.	Common Name.	Flowering.	Colour Flower.	Col. Fol.	Hgt.
Cydonia Japonica....	Japan Quince....	March, April..	Scarlet	Glossy green	4'- 5'
Deutzia Lemoine....	.....	April, May....	White	Green.....	4'- 5'
Forsythia Intermedia	Golden Bell....	March, April..	Golden	Green.....	5'- 6'
Hydrangea Paniculata	Common Hydrangea .....	.....	.....	.....	.....
Ligustrum Iboia	Drooping Privet..	September	Purplish White	Green.....	5'- 6'
Rhodotyus, Kerriodes	White Kerria....	August	White	Green.....	6'- 7'
Rhus Aromatica....	Fragrant Sumac..	May	White	Green.....	5'- 6'
Spirea Crispifolia....	.....	July, August..	Yellow	Green crim.	5'- 6'
Spirea Prunifolia Var.	.....	.....	Deep pink....	Green.....	3'- 4'
Flore Pleno	Bridal Wreath...	April	White	Green.....	5'- 6'
Spirea Van Houttei..	.....	May	White	Green.....	4'- 5'
Stephanandra Flexuosa .....	.....	June	White	Green.....	4'- 5'
Viburnum opulus, Var. Stesile	Guelder Rose....	May, June....	White	Bronze green	5'- 7'
Viburnum Plicatum .....	.....	.....	.....	.....	.....
Tomentosum	Japan Snowball..	May	White	Bronze green	5'- 6'
Viburnum Dentatum..	Arrow-wood	May, June....	White	Green.....	5'- 6'
Hibiscus Syriacus....	Rose of Sharon..	Aug., Sept....	Red	Green.....	8'-10'
Hibiscus Syriacus Var folis. Argentia Marginata	Variegated Rose Sharon	Aug., Sept....	Purple	Green & wht.	8'-10'
Exochorda Grandiflora	Pearl Bush.....	May	White	Green.....	9'-10'
Diervilla Japonica .....	.....	.....	.....	.....	.....
Rubra	Weigelia	May, June....	White	Green.....	4'- 5'
Diervilla Japonica Aurea .....	.....	.....	.....	.....	.....
Euonymus Alatus....	Weigelia	May, June....	Red	Green.....	4'- 5'
Corchorus Japonica..	Cork Bark	June, Sept....	Yellow	Green crim.	8'-10'
Calycanthus Floridus	Globe-flower	May, Aug....	Yellow	Green.....	4'- 5'
.....	Allspice Bush....	April	Brown	Green.....	5'- 6'

CLASS C.

Botanical Name.	Common Name.	Flowering.	Colour Flower.	Col. Fol.	Hgt.
Azalea Mollis	Chinese Azaleas..	May	Red, white, orange, yell.	Green.....	4'- 5'
Azalea Pontica....	Chinese Azaleas..	May	Crimson, white, pink, yellow.	Green.....	4'- 5'
Azalea Amoena....	Japan Azalea....	May	Claret pink...	Green, red..	3'- 4'
Azalea Amoena Var. Hinodogens	Japan Azalea....	May	Flame. carmine	Green, red..	3'- 4'
Rhododendron Hybrids var. .....	.....	.....	.....	.....	.....
Var. Evertesianum .....	.....	May, June....	Rose, lilac	Evergreen.	5'- 6'
Var. Album Elegans .....	.....	May, June....	White	Evergreen.	5'- 6'
Var. Roseum Elegans .....	.....	May, June....	Old rose.....	Evergreen.	5'- 6'
Var. Purpureum Elegans .....	.....	May, June....	Purple	Evergreen.	5'- 6'
Var. H. W. Sargent .....	.....	May, June....	Scarlet	Evergreen.	5'- 6'
Caryopteris Mastacanthus	Blue Spirea....	August	Blue	Green.....	4'- 5'
Cercis Japonica....	Judas tree.....	Mar, Apr., May	Bright pink...	Green.....	6'- 7'
Cydonia Japonica....	Japan Quince....	May	Scarlet	Green.....	4'- 5'
Deutzia Gracilis	Dwarf Deutzia...	May	White	Green.....	2'- 3'
Deutzia Gracilis Carmina	Dwarf Pink Deutzia	May	Pink	Green.....	2'- 3'
Deutzia Lemoine ....	.....	May	White	Green.....	3'- 4'
Diervilla Florida .....	.....	.....	.....	.....	.....
Rosea	Weigelia	May	Rose	Green.....	5'- 6'
Diervilla Florida .....	.....	.....	.....	.....	.....
Candida	Weigelia	May	White	Green.....	5'- 6'
Diervilla Florida Eva .....	.....	.....	.....	.....	.....
Rathe	Weigelia	May	Carmine	Green.....	4'- 5'
Forsythea Fortunei..	Golden Bell....	April, May....	Yellow	Green.....	5'- 6'
Forsythea Viridissima	Golden Bell....	April, May....	Yellow	Green.....	5'- 6'
Hibiscus totus Alba..	White Rose of Sharon	August	White	Green.....	5'- 7'
Hibiscus totus Rubus	Red Rose of Sharon	August	Red	Green.....	5'- 7'
Hydrangea Paniculata	.....	September	White	Green.....	5'- 6'
Grandiflora .....	.....	.....	.....	.....	.....
Spirea Thunbergii....	Thunbugs Spirea	May	White	Green.....	3'- 4'
Spirea A. Waterer....	.....	May to Oct....	Crimson	Green.....	3'- 4'
Spirea Van Houttei..	.....	May	White	Bluish green	3'- 4'
Spirea Reevesiana...	.....	May	Pink, white ..	Green.....	3'- 4'

CLASS D.

Botanical Name.	Common Name.	Color of Bark.	Height.
Amphorbia Canescens	Lead plant.....	Silvery gray.....	2'- 3'
Cornus Alba.....	Siberian Dogwood	Bright red.....	6'- 7'
Cornus Sanguinea....	European Osier .....	.....	.....
.....	Dogwood	Purplish red....	6'- 7'
Cornus Lutea	Silky Dogwood...	Red	6'- 7'
Cornus Lutea Syn. Aurea	Yellow twigged Dogwood	Yellow	5'- 6'
Exochorda Grandiflora .....	.....	.....	.....
.....	Pearl bush.....	Light brown.....	8'-10'
Forsythia Intermedia .....	.....	Light green.....	5'- 6'
Fuddhia Japonica....	.....	Green and gray ..	4'- 5'
Spirea Thunbergii....	Thunberg's Spirea	Intense brown....	4'- 5'
Cytisus Scoparius....	.....	Bright green.....	3'- 4'
Genista tinctoria....	Dyer's greenwood	Green	3'- 4'
Salix Sericea.....	Silk Willow	Reddish	4'- 8'
Salix Humilis	Prairie Willow...	Brown	3'- 5'
Xanthorrhiza Aphiifolia	Yellow Root....	Yellow	1'- 2'

CLASS A.

Botanical Name.	Common Name.	Flowering.	Colour Flower.	Col. Fol.	Hgt.
<i>Syringa Japonica</i>	Japan Lilac	May, June	Pale Lilac	Dark green	8-10'
<i>Syringa Persica Alba</i>	Persian Lilac	May, June	White	Dark green	8-10'
<i>Syringa Vulgaris</i>	Common Lilac	May, June	Reddish	Dark green	7-8'
<i>Aralia Spheosa</i>	Hercules Club	July, August	White	Green	12-15'
<i>Spirea Opulifolia</i>	Golden Spirea	June	White	Golden	7-8'
<i>Pavia Parvifolia</i>	Dwarf Horse Chestnut	June	White	Green	6-7'
<i>Ligustrum Itoha</i>	Drooping Privet	July	White	Green	7-8'
<i>Ligustrum Kegeliana</i>	Regel's Privet	July	White	Green	6-7'
<i>Lonicea Fragranul-sima</i>	Bush Honeysuckle April	White	White	Green	6-7'
<i>Corylus Maxima Var. Purpurea</i>	Purple Leaved Hazel	May	Gray	Purple	8-15'
<i>Cercis Japonica</i>	Japan Judas	April	Bright pink	Green	7-8'
<i>Caryopteris Mastacanthus</i>	Blue Spirea	August	Blue	Green	6-7'
<i>Philadelphus nanus</i>	Mock Orange	April, May	White	Green	8-9'
<i>Philadelphus coronatus</i>	Golden Mock Orange	April, May	White	Golden	7-8'
<i>Diervilla Florida Var. Rosea</i>	Wiegelia	May, June	Rose pink	Green	6-7'
<i>Diervilla Florida Var. Rosea Variegata</i>	Variegated	May, June	Rose	Green white	6-7'
<i>Diervilla Florida Var. Eva Rabe</i>	Wiegelia	May, June	Dark red	Green	5-6'
<i>Diervilla Florida Var. Candida</i>	Wiegelia	June	White	Green	4-5'
<i>Forsythia Fortunei</i>	Golden Bell	April	Golden	Green	5-6'
<i>Hydrangea paniculata Grandiflora</i>	August	White	Green	5-6'	
<i>Hydrangea Quercifolia</i>	St. John's Wort	September	White	Bronze Green 5-6'	
<i>Hypericum aureum</i>	St. John's Wort	August	Golden	Bluish green 4-5'	
<i>Hypericum Moserianum</i>	St. John's Wort	July, August	Golden	Green	4-5'
<i>Lespedeza Stebboldi</i>	Thunberg's Spirea April	September	Rose purple	Green	2-3'
<i>Spirea Thunbergii</i>	Thunberg's Spirea April	May	White	Green	3-4'
<i>Spirea Bumalda Var. A. Waterer</i>	Waterers, Spirea June, October	July, August	Pink	Green	3-4'
<i>Spirea Billardi</i>	June	Rose	Green	5-6'	
<i>Rosea</i>	May	White	Green	2-3'	
<i>Deutzia Gracilis Var. Deutzia Gracilis Var.</i>	May	Rose pink	Green	2-3'	
<i>Rosea</i>	May	White	Green	2-3'	
<i>Berberis Thunbergii</i>	Japan Barberry	May	White	Bluish green 2-3'	
<i>Prunus, pissardi</i>	Purple plum	May	White	Purple 10-12'	
<i>Rhus, Copallina</i>	Shining Sumac	August	Yellow red	Green	8-10'
<i>Cornus, Florida Alba Dogwood</i>	May, June	White	Green	Green	10-12'

CLASS E.

Botanical Name.

Common Name.

Color of Berries.

Season of Color

<i>Berberis Vulgaris</i>	Common Barberry	Dark red	Autumn, winter.
<i>Berberis Thunbergii</i>	Japan Barberry	Scarlet	Autumn, winter.
<i>Callithea Purpurea</i>	Beautif Fruit	Scarlet	Autumn, winter.
<i>Colletia Arborescens</i>	Bladder Iemna	Violet blue	Autumn, winter.
<i>Cornus Alternifolia</i>	Blue Dogwood	Red	Autumn, winter.
<i>Cornus Mas</i>	Cornelian Cherry	Blue	Autumn, winter.
<i>Cornus Florida Alba</i>	White Dogwood	Scarlet	Autumn, winter.
<i>Cornus Stolonifera</i>	Red Osier Dogwood	Scarlet	Autumn, winter.
<i>Elaeagnus Longipes</i>	Japan Oleaster	White	Autumn, winter.
<i>Eunonymus Americanus</i>	Strawberry Bush	Scarlet	Autumn, winter.
<i>Eunonymus Europaeus</i>	Spindle-lee	Orange	Autumn, winter.
<i>Crataegus Coccinea</i>	Scarlet Thorn	Bright scarlet	Autumn, winter.
<i>Crataegus Crus-Galli</i>	Cockspur Thorn	Orange red	Autumn, winter.
<i>Crataegus Tomentosa</i>	Black Haw	Bright scarlet	Autumn, winter.
<i>Crataegus Pyracantha</i>	Evergreen Thorn	Scarlet	Autumn, winter.
<i>Celastrus Scandens</i>	Bitter Sweet	Bright scarlet	Autumn, winter.
<i>Lindstrum Retelanum</i>	Regel's Privet	Orange scarlet	Autumn, winter.
<i>Lindstrum Ilexolm</i>	Spice Bush	Flush black	Autumn, winter.
<i>Lonicera Morrowi</i>	Bush Honeysuckle	Scarlet red	Autumn, winter.
<i>Lonicera KuepRechiana</i>	Bush Honeysuckle	Bright red	Autumn, winter.
		Orange scarlet	Autumn, winter.

CLASS E.

Botanical Name.	Common Name.	Color of Berries.	Season of Color
<i>Berberis Vulgaris</i>	Common Barberry	Dark red	Autumn, winter.
<i>Berberis Thunbergii</i>	Japan Barberry	Scarlet	Autumn, winter.
<i>Calliandra Purpurea</i>	Beauty Fruit	Violet blue	Autumn, winter.
<i>Colutea Arborescens</i>	Bladder Leena	Red	Autumn.
<i>Cornus Alternifolia</i>	Blue Dogwood	Blue	Autumn.
<i>Cornus Mas</i>	Cornelian Cherry	Scarlet	Autumn.
<i>Cornus Florida Alba</i>	White Dogwood	Scarlet	Autumn.
<i>Cornus Stolonifera</i>	Red Osier Dogwood	White	Autumn.
<i>Elaeagnus Longipes</i>	Japan Oleaster	Scarlet	Autumn.
<i>Elaeagnus Americana</i>	Strawberry Bush	Orange	Autumn.
<i>Elaeagnus Europaea</i>	Spindle-tree	Orange	Autumn.
<i>Crataegus Coccinea</i>	Scarlet Thorn	Bright scarlet	Autumn, winter.
<i>Crataegus Crus-Galli</i>	Cockspur Thorn	Orange red	Autumn, winter.
<i>Crataegus Tomentosa</i>	Black Haw	Scarlet	Autumn, winter.
<i>Crataegus Standishii</i>	Evergreen Thorn	Bright scarlet	Autumn, winter.
<i>Ligustrum Kegelianum</i>	Regel's Privet	Bluish black	Autumn, winter.
<i>Lonicera Benzoin</i>	Spice Bush	Scarlet	Autumn, winter.
<i>Lonicera Morrowi</i>	Bush Honeysuckle	Bright red	Autumn, winter.
<i>Lonicera Ruprechtiana</i>	Bush Honeysuckle	Orange scarlet	Autumn, winter.

CLASS G.

Hedge planting, utilizing the beauty of flower and foliage into the formation of hedge.

Botanical Name.	Common Name.	Color of Foliage.	Color of Flower.
<i>Berberis Thunbergii</i>	Japanese Barberry	Bluish green	White.
<i>Cornus Sanguiuea Variegata</i>	Variegated Dogwood	Green	White.
<i>Cornus Florida Alba</i>	White Dogwood	Green	White.
<i>Deutzia Gracilis</i>	Dwarf Deutzia	Green	Pink to white.
<i>Deutzia Crenata Welli</i>	Deutzia	Green	Pink.
<i>Deutzia Lemnche</i>	Deutzia	Green	White.
<i>Elaeagnus Farvifolia</i>	Silver Thorn	Silvery green	Cream, white.
<i>Elaeagnus Longipes</i>	Japanese Oleaster	Green	White.
<i>Hibiscus Syriacus</i>	Rose of Sharon	Green	White, pink, red.
<i>Ligustrum Ovalifolium</i>	Golden Privet	Golden and green	White.
<i>Ligustrum Chinensis</i>	Chinese Privet	Green	White.
<i>Citrus Trifoliata</i>	Hazy Orange	Green	White.
<i>Cydonia Japonica</i>	Japanese Quince	Bright green	Brilliant scarlet.
<i>Spirea Argentea</i>	Dwarf Spirea	Green	White.
<i>Spirea A. Waterer</i>	Dwarf Spirea	Green	Crimson.
<i>Spirea Van Houttei</i>	Dwarf Spirea	Green	White.
<i>Syringa Vulgaris Alba</i>	Common White Lilac	Green	Purple.
<i>Syringa Vulgaris</i>	White Lilac	Green	White.
<i>Viburnum Prunifolium</i>	Black Haw	Bronze green	White.
<i>Viburnum Tomentosum</i>	Common Snowball	Bronze green	White.
<i>Rosa Rugosa</i>	Japanese Rose	Green	Pink.
<i>Rosa Persian Yellow</i>	Sweet Briar	Green	Yellow.
<i>Rosa Rubiginosa</i>	English Hawthorne	Green	White.
<i>Crataegus, in Variety</i>	English Hawthorne	Green	White.
<i>Oxyacantha</i>	English Hawthorne	Green	White.
<i>Crataegus Oxyacantha</i>	English Hawthorne	Green	White.
<i>Pauls, Scarlet</i>	English Hawthorne	Green	Scarlet.

CLASS H.

Botanical Name.	Common Name.	Color of Foliage.	Color of Flower.
<i>Aralia Spheosa</i>	Hercules Club	Green	White.
<i>Caragana Arborescens</i>	Siberian Pea	Glossy green	Yellow.
<i>Cephalanthus Occidentalis</i>	Button Bush	Bright green	White.
<i>Cercidiphyllum Japonica</i>	Japan Judas	Green	Bright pink.
<i>Chionanthus Virginica</i>	White Fringe	Green	White.
<i>Corylus Maxima Purpurea</i>	Purple Hazel	Purple	White.
<i>Crataegus Oxyacantha</i>	Double Pink Thorn	Green	Pink.
<i>Crataegus Oxyacantha</i>	Double Pink Thorn	Green	White.
<i>Cytisus Laburnum</i>	Golden Chain	Green	Gold.
<i>Exochorda Grandiflora</i>	Pearl Bush	Green	White.
<i>Viburnum Plicatum</i>	Japanese Snowball	Green	White.
<i>Rhus Cotinus</i>	Smoke Tree	Green	Bluish black.
<i>Hydrangea paniculata</i>	Hydrangea	Green	White.
<i>Rubus Hippida</i>	Rose Acacia	Green	Rose pink.
<i>Saxifraga</i>	Rosemary Willow	Gray, green	White.
<i>Halimolobos</i>	Snowdrops Bush	Green	White.
<i>Hibiscus Syriacus Folia Variegata</i>	Variegated Althea	Green, white	Purple.
<i>Ptelea Trifoliata</i>	Hop Tree	Green	White.
<i>Styrax Japonica</i>	Talpac	Green	White.
<i>Syringa de Marley</i>	Talpac	Green	White.
<i>Tamarix Africana</i>	Tamarisk	Green	Pink.

unsightly object, would include varieties graded as tall, medium and dwarf growing, principally for foliage coloring combination. Planted according to height which they attain, such as tall growing sorts at furthest point, grading the medium and dwarf foremost. For list see accompanying table.

Class B group is a planting or general purpose group, an assortment of varieties as a fixed adornment to a curved walk, bank at terminus of walk, base of dwelling, flanking of lawn, road or walk, combining foliage and flower, giving continuous season of flower.

Class C shows a group for mass planting effects with distinctive colors of flowers en masse, a combination of varieties of contrasting color blending into one great blaze or color of varieties of same flowering season planted in colonies of 5 to 9 each variety.

Class D are grouped for winter effects by the use of varieties with bright colored

CLASS I.

Evergreen shrubs for colony group planting or mass effect of foliage and flower.

Botanical Name.	Common Name.	Color of Flower.	Height.
Rhododendron Hybrids			8'-10'
Abraham Lincoln		Rosy crimson	
Album Grandiflorum		White	
Blandyanum		Rose crimson	
Parsons' Gloriosum		Blush	
Purpurem Grandiflorum ..		Purple	
Rhododendron Maximum ...	Great Laurel	White	9'-10'
Rhododendron Catawbiense.	Southern Rhododen-		
	dron	Rose, purple	10'-12'
Azalea Amoena	Japan Azalea	Claret, pink	3'- 4'
Azalea Amoena Henondigiro.	Japan Azalea	Flame scarlet	3'- 4'
Azalea Indica	Indian Azalea	White	3'- 4'
Andromeda Catesbaei	Leucothoe	White	1'- 2'
Andromeda Floribunda		White	1'- 2'
Andromeda Japonica		White	1'- 2'
Buxus Japonica	Japanese Box		4'- 5'
Buxus Sempervirens	Common Box		4'- 5'
Euonymus Japonica	Japan Euonymus ...		5'- 6'
Euonymus Japonica Argen-			
tea	Silver Margined		5'- 6'
Euonymus Japonica Aurea ..	Gold Margined		5'- 6'
Kalmia Latifolia	American Laurel	White	5'- 6'
Mahonia Japonica	Japanese Mahonia ...	Yellow	3'- 4'
Aucuba Japonica	Japanese Laurel		4'- 5'
Aucuba Japonica Aureo			
Maculata	Gold Dust, Japan		
	Laurel		4'- 5'
Ilex Crenata	Japan Holly		4'- 5'

back planted in colonies, 5 to 7 each, giving an effective blending of color in winter.

Those in Class E are designed to secure

winter effects with the use of varieties which a profusion of various colored berries produce.

IOWA STATE ALLISON FOUNTAIN MEMORIAL

The model for the monument to the late Senator Allison, of Iowa, to be erected in Des Moines, was selected in an interesting limited competition participated in by fourteen sculptors, and the commission, and

mounted by the American eagle, and in her right a sheathed sword. Knowledge carries aloft in one hand a torch, in the other the sphere, symbol of the Universe; on his breast are entwined the Serpents of Wis-

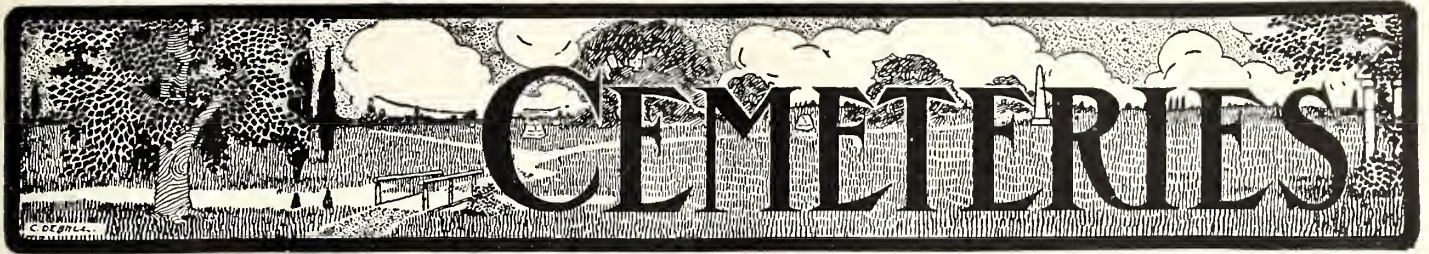
dom. This figure is followed by Legislature and Financial Prosperity, the former carrying the books of the law and the fasces, symbolic of power, and the latter holding a horn of plenty filled with coins. On the other side, Peace with her symbol, the palm, leads forward Humanity, represented by the mother and child and the laborer carrying a sheaf of wheat and a scythe. The wheat is also the symbol of plenty and is used again in the ornamental border around the top of the pedestal. Above the plinth which supports the Republic is a conventional laurel design, symbolic of achievement. About the base of the pedestal is a design of oak and laurel symbolizing strength and success, and on it, in front, appears the inscription, "Good Citizenship is the Foundation of a Nation." At the side, below the group led by Knowledge, is the motto, "Knowledge is the Fountain of Lasting Prosperity," and on the other side, below the group representing Peace, is the quotation, "Peace hath her Victories no less renowned than War." The text of the dedicatory inscription below the portrait tablet has been left to the discretion of the Monument Committee. The monument is designed with a water setting. The pedestal rests upon a flight of steps, in the top one of which is a bronze inlay of water flowers, from the center of which the water is designed to bubble quietly and flow down the steps into the basin below. While the running water adds a touch of beauty, it may, if desired, be used only on festive occasions or to refill the basin, its omission not impairing the general beauty of design, as in the case where the water jets are used and form an important part of the composition. The figure of the Republic sits about 8 feet (if standing it would be about 10½ feet) and is to be in Tennessee marble, with wreath, staff and sword of gilded bronze. The other six figures stand about 8 feet 8 inches and are to be in bronze, as is also all the inlaid ornament. The pedestal and base are to be in rubbed Stony Creek granite. The steps and curb of basin are to be of Fox Island granite and the basin itself granolithic. The total height of the monument is about 30 feet and the diameter of the basin (outside of curb) 69 feet. Three years have been apportioned for the selection of a site and erection of the memorial. Its cost will be slightly over \$50,000.



ACCEPTED MODEL FOR ALLISON MEMORIAL, DES MOINES, IA.
Evelyn E. Longman, Sc.

the design, a handsome fountain group was awarded to Miss Evelyn B. Longman, of New York City. Miss Longman's winning model is illustrated herewith. As Senator Allison was essentially a national character, representing the highest civic ideals, the sculptor's design has been to give full expression to this. His portrait, however, forms the keynote of the whole conception. This appears on the front of the pedestal in bas-relief, flanked on either side by the Victory of Knowledge and the Victory of Peace, the great actuating ideals of his life. Above, upon the pedestal, is a statue of the Republic, laurel crowned and holding in her left hand a staff sur-

mounted by the American eagle, and in her right a sheathed sword. Knowledge carries aloft in one hand a torch, in the other the sphere, symbol of the Universe; on his breast are entwined the Serpents of Wis-



DEVELOPMENT of SAN ANTONIO'S TWO CEMETERIES

Some months ago we described in these pages the competition for designs held by the Mission Cemetery, San Antonio, Tex.,

ground, with 15 acres improved. It was chartered on May 18, 1909. The grounds were planned by Hare & Hare, of Kansas

river. There are more than two miles of improved roads. The cemetery is conducted strictly on the lawn plan, with restrictions regarding mounds over graves, which are limited to $2\frac{1}{2}$ inches in height. Only one monument is allowed to a lot, and individual markers must not be more than six inches above ground. Designs of monuments or vaults must be submitted to the cemetery for approval. There is a public receiving vault and chapel of stone and stucco. The vault has twelve crypts and the chapel seats 100. It cost \$18,000. There are two concrete water gardens and four fountains. Drives are curved, with small parks at all drive intersections, eliminating right angle turns. Important improvements contemplated include crematory and greenhouses.

The City Mission Cemetery is situated about $5\frac{1}{2}$ miles south of the city and is bounded on the west by the Corpus Christi road, on the east by the San Jose road, on the south by the Ashley road and on the north by a 60-foot open roadway connecting the Corpus Christi road and the San Jose road.

The area is 536 acres, including the land let to the United States government for an experiment station and farm.



INSIDE THE ENTRANCE, MISSION BURIAL PARK, SAN ANTONIO, TEX.

for which the winning design was furnished by E. Habecker.

San Antonio also has a private cemetery known as Mission Burial Park, directly across the Mission Loop from the city tract, so that the two names are somewhat confusing. The plan shown here is of the grounds of the city "Mission Cemetery," while the other views are of the "Mission Burial Park." W. H. Chambers, superintendent of the Mission Burial Park, selected its site on account of its natural beauty and location. It is located five and one-half miles from the center of the city and has a front of half a mile on the most popular automobile drive, the Mission Loop, so named because this drive passes three of the old Spanish missions. The groves are located between the San Jose and the San Juan missions, hence the name, "Mission Burial Park." One of our views shows the office building of this tract and another is a view just inside of the entrance, showing the residence of S. S. Jewett, the assistant superintendent. This picture also shows a water tower. The water garden seen in this view is stocked with large gold-fish.

Mission Burial Park is controlled by a private corporation and has 137 acres of

City, Mo., and the improvements to date have cost \$31,500. There have been 208 interments. The perpetual care fund amounts to \$1,607.71 and is loaned by the trustees on real estate at 8 per cent. Fif-

teen per cent of sales are applied to this fund. One of the interesting landscape features is the river, and the grove along the river, of stately pecan trees. There is a concrete dam in the river ten feet high and the ground is above high water. Pecan, hackberry, wescatche and mesquite trees are numerous on the grounds. The water supply is pumped into the mains from the



CHAPEL, MISSION BURIAL PARK, SAN ANTONIO, TEX.

The location is an ideal one in many respects; so is the drainage and the character of the soil. The top soil increases in depth with the elevation of the ground, and is sufficiently deep and rich to support a good growth of vegetation, while the subsoil, consisting of gravel and sand, is the most suitable for cemetery purposes on account of its porosity. The ground is

highest on the side of the Corpus Christi road and slopes gradually with slight undulations towards the east and south. A shallow draw through the northern portion, and Seven-Mile Creek (Arroyo de

The southwestern portion of the cemetery is occupied by another large burial field of nearly circular form, surrounded by a broad driveway and screened in the same manner as the others.

in catch basins that could easily be built in several places at small cost; such basins would form small lakes, increase the supply of water for irrigation, and improve the beauty of the landscape to no small extent.

At the San Jose entrance space is reserved for an office building, public receiving vault, reception room for patrons and visitors, and residence for employees. Greenhouse, nurseries and gardener's residence will be found at the northeastern extremity of the grounds. When in years to come the management requires more office room and help, the place for an administration building will be at the western entrance. All buildings should be harmonious in style and modest in design.

E. Habecker has been engaged by the city to furnish all the working plans and estimates for the development of the City Mission Cemetery. A fence of concrete posts of special design is now in progress of building; it cost \$3,282.84. A main entrance gate with granite posts and wrought-iron wings is under consideration. Rustic shelters, shady arbors and resting places are distributed all over the groves, and especially near or about the large fountain basins, one of which is found in each of the five principal sections of the cemetery.

The water will be supplied by a deep well and pumping plant, and carried through a pipe system to all parts of the cemetery.

Besides the chapel, there will be an office building with residence for the cemetery superintendent. Space is also reserved for nurseries, greenhouses and residence for gardener and his assistants.

The entire western portion of the land is at present occupied by the United States Experimental Farm, and only the central western part will be developed in the near future.

New England Cemetery Association Officers.

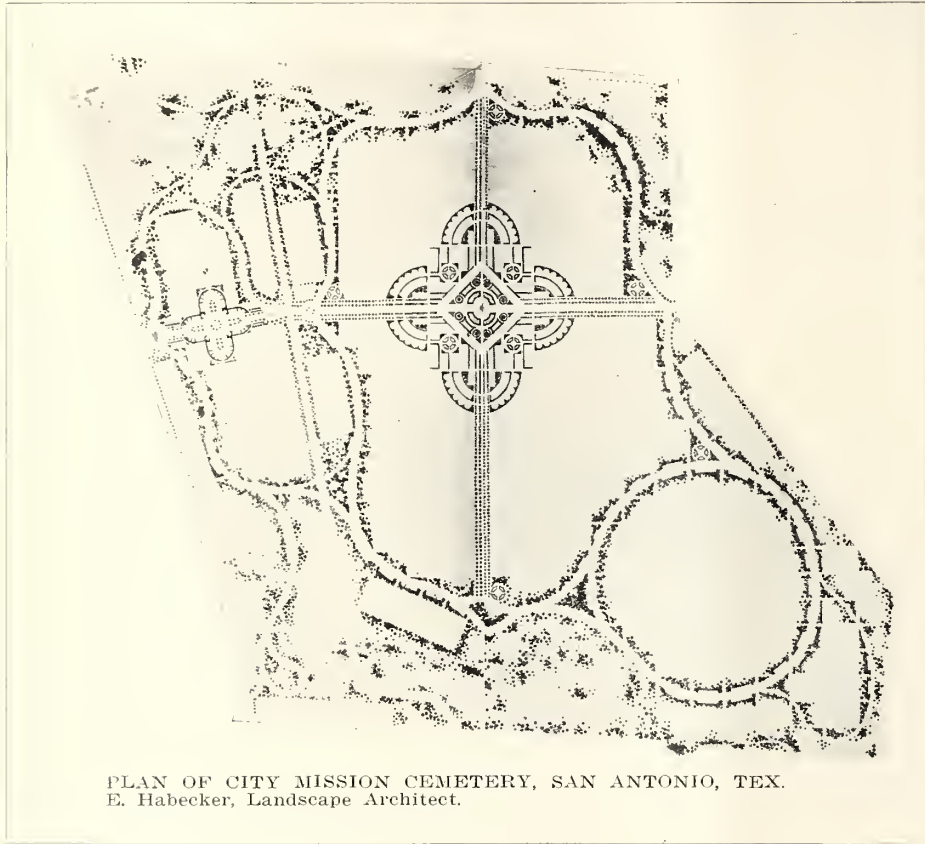
At the recent meeting of the New England Cemetery Association the following officers were elected:

President—Edgar King, Superintendent Peabody Cemetery, Springfield, Mass.

Vice-President—Henry S. Adams, Superintendent Forest Hills Cemetery, Jamaica Plain, Mass.

Secretary and Treasurer—Horace A. Derry, Superintendent Glenwood Cemetery, Everett, Mass.

An interesting paper from Superintendent Leonard Ross, of the Boston Cemetery, was read. This will be printed in full in an early issue of *PARK AND CEMETERY*.



PLAN OF CITY MISSION CEMETERY, SAN ANTONIO, TEX.
E. Habecker, Landscape Architect.

Piedra) through the southern, afford a natural and favorable drainage of the entire tract.

The two main avenues intersecting at right angles and running to the cardinal points lead from the main entrances to the highest point of interest. The central portion, which is crowned by a chapel in mission style, surrounded by rich flower beds and four fountain basins around which the choicest select family lots are arranged in symmetrical order, is framed in by hedge plantings of various material and form. Pergolas and arbors covered with hardy blooming vines form one of the attractive features of this portion.

The main avenues, flanked by ten-foot sidewalks and shaded on either side by double rows of trees, divide the greater northeastern part of the cemetery into four large burial fields, which are accessible from all sides by curved parkways following the contours of the land. These burial fields are screened by rich plantings of trees, shrubbery and border plants, so as to eliminate as much as possible the character of the old-time graveyard, while at the same time the arrangement is such as not to interfere with the accessibility and practical utilization of the grounds.

The burial fields or sections are divided into blocks of one acre each, which are bounded by sodded alleyways or streets, and each such block is subdivided into lots, their size varying with the purpose they are intended to serve, whether for single graves or for families.

About the central portion are grouped 268 select family lots varying in size from 20x40 to 30x60 feet, all surrounded and screened by hedge plantings differing in character to avoid monotony. These lots are best suited for erecting costly monuments and other ornamental structures.

Besides these, there is a large number of border lots along the avenues and driveways.

Rustic shelters, shady arbors and resting places are distributed all over the park, and especially near or about the fountain basins, one of which is found in each of the five principal sections of the cemetery.

Water for domestic use and for feeding fountains could be supplied by the city waterworks, while for irrigating purposes a deep well—even though it carried sulphur—would furnish all that would be required. Besides this, a large amount of storm water should be gathered and stored

IMPROVEMENT WORK AT CEDAR RAPIDS CEMETERY

Linwood Cemetery, Cedar Rapids, Ia., has made good progress in modern development of its grounds in the past few years under the efficient direction of Superintendent Frank W. Stolba, and the views here show some evidence of the careful attention given the grounds.

The old residence of the superintendent formerly stood where the entrance shown in one of our pictures is located, and a

fine new residence has been built at a cost of \$3,000 for the superintendent in another part of the grounds. This is a modern building of cement construction. A new tool house has also been built, the total cost of new construction being about \$3,500.

The displays of tulips, salvias, cannas and asters in large beds are among the most interesting features of the grounds to vis-

itors, and these displays have been freely commended in the local press. A bed of 8,000 tulips was a special show feature last spring, and one of our pictures shows a planting of asters covering 1,200 square feet.

The creditable development of Linwood is due, in a very large measure, to the activity of Lew W. Anderson, with whom it has become a labor of love.

Linwood Cemetery was started in 1840 as the burial ground of the family of Thomas Gainer, remaining a private institution until 1881, when the Linwood Cemetery Co. was organized under the laws of Iowa with a charter for 1,000 years, with right renewal. The tract comprises forty-five acres, and overlooks the city, affording a view almost unsurpassed from any other point of vantage. During the active administration of Mr. Anderson, who is treasurer of the company and of the "perpetual care fund," many handsome improvements have been made.



NEW ENTRANCE TO LINWOOD CEMETERY, CEDAR RAPIDS, IA.



1,200 SQUARE FEET OF ASTERS AT LINWOOD CEMETERY, CEDAR RAPIDS, IA.



AT WORK IN LAWN CARE SECTION, LINWOOD CEMETERY.

IMPROVING NEW SECTION, HOMEWOOD CEMETERY

Homewood Cemetery, Pittsburgh, Pa., has issued one of the finest of the handsome illustrated cemetery books that has recently come to our notice. It is a model of fine printing and illustration and contains many beautiful pictures of the grounds similar to the one shown here and much suggesting and interesting matter pertaining to the improvement of the cemetery and the care of the grounds.

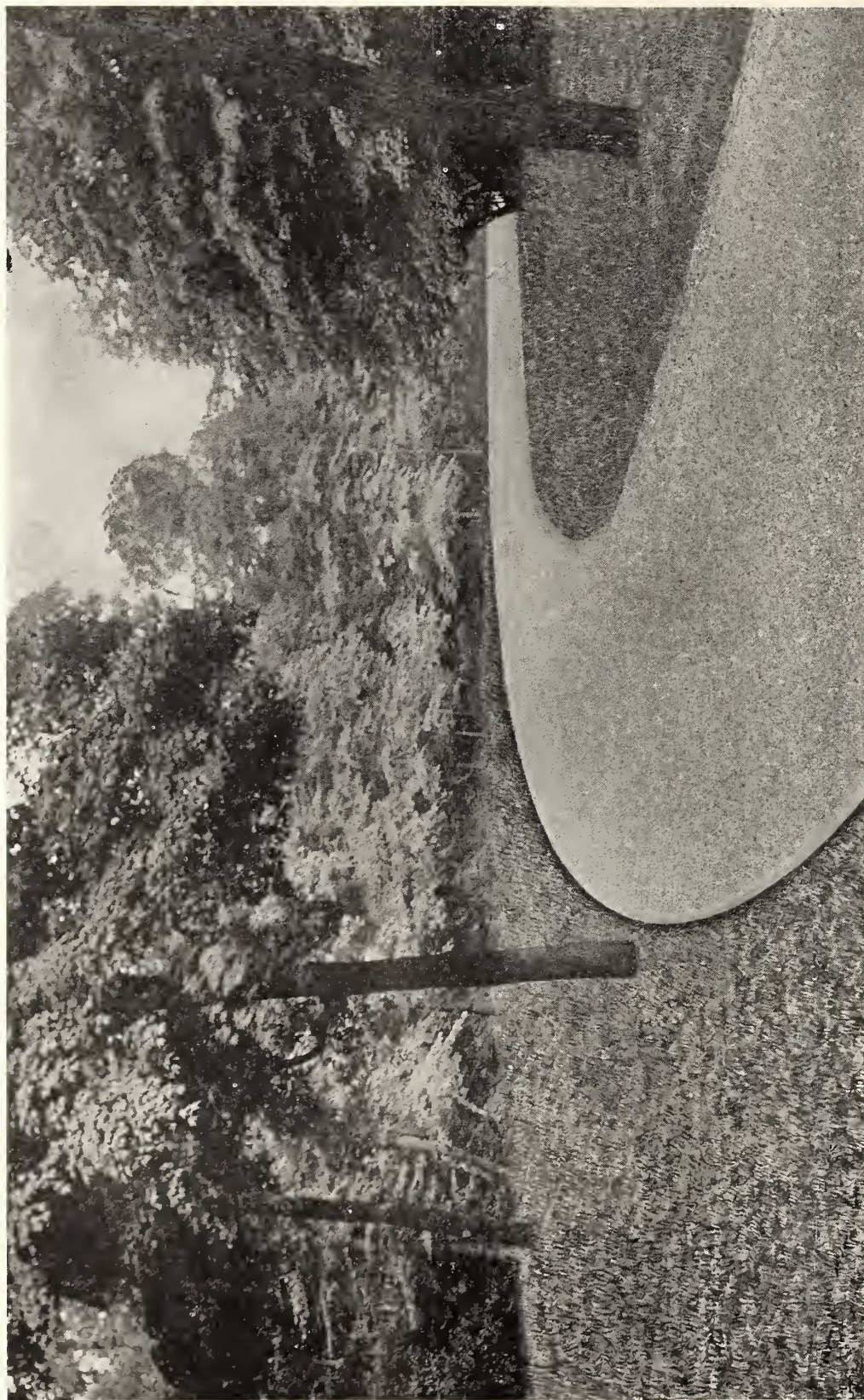
The lot sales in Homewood last year amounted to a total of \$74,236, and foundations to the value of \$6,465 were built. The returns of the greenhouse department amounted to \$8,799.90, and the pay-roll of the day men for the year amounted to \$25,376.60. There were 488 interments during the year, making a total of 18,405.

Ten acres of land were bought during the year at a cost of \$91,800, and \$9,000 was expended in new grading operations. One of the most interesting improvements in the way of grading yet made on the grounds is the transformation of Fern Hollow, a waste tract that is being converted into one of the handsomest sections in the cemetery. Fern Hollow was an old river bed, running through the cemetery, that was considered waste property. When finished the work will mean that a hill about a quarter mile away, that was too steep to make good cemetery lot land, will be so graded that it will command the highest price in the cemetery, and the earth removed, will grade this ravine, or old river bed, so that about sixty acres

will be made available, besides giving one of the most picturesque drives in the city. An incline gravity railway is used to move the dirt, and Superintendent William Allen reports that this equipment is giving perfect service.

Under the head of "Best Plans for Laying Out and Ornamenting Cemeteries," Mr. Allen gives some very good advice to lot owners, from which we quote as follows:

"Happily for our cemetery, we have in time forbidden all inclosures—and the corporation engages to keep the lot permanently in good order—the lot, not the structures placed on the lot. Thus we have provided for an open, landscape appearance, and a complete sward, free from litter and weeds. We have provided, also, for all necessary prunings—and the suppression of all unsightly overgrowth of trees and shrubs; and the subject of tree planting is left to the judgment of the managers and officers. Thus we have completely



FERN HOLLOW, HOMEWOOD CEMETERY; BARREN TRACT TRANSFORMED INTO GOOD CEMETERY PROPERTY.

provided against common cemetery errors. Grass--and trees, and ornamental shrubs, distributed with judgment and taste over a handsome, rolling surface--with good roads winding around in different directions, wherever they are absolutely needed, compose the principal features of a landscape which always gives true pleasure, and has a wonderfully calming and joyous effect upon the mind. All this can be had in the cemetery, as well as in a public park, without at all detracting from the sacredness and privacy of a true city of the dead. But it is evident that the planting and removing of trees and shrubs must be mainly in the hands of one person--one mind must direct the whole, or the scene will be marred, if not ruined, by injudicious plantings. Hence the rules we have adopted, giving the managers power to enter upon any lot, and remove whatever shall be detrimental to the good of the whole.

"Forest trees, as a rule, are unfit for the occupied parts of a cemetery. To some this may seem a heresy, but time, which proves all things, will

violate the assertion. In the unoccupied and ornamental parts of the grounds--and there always should be left ample space for such purposes--large trees may be grown, single trees, or groups, or thickets. In our cemetery we have abundant space for ornament, on the slopes of hills too steep for lots--and we have belts, and thickets and groups, and noble old trees, of the growth of a hundred years. These are sacred in our eyes. But in the portion of the ground laid out in lots, we want no forest trees, or other large trees--no trees we cannot keep under control. We want the air, the sunshine, the green grass, and we want to protect all erections which the band of affection has placed upon a lot. All monuments standing near, or under large trees, are continually in danger of destruction, and they are frequently discolored and from dampness engendered in such localities, colored, and sometimes ruined by drips from trees

"We range ourselves, therefore, on the side of those who favor the landscape plan--but on a modified form. We do not forbid all structures

upon a lot except the central monument, although we approve of it; but we discard inclosures, we keep the corner posts low, we commend the central monument, and we provide for the glorious grass carpet, free from litter and weeds, and a judicious planting under the control of the managers. Time will do the rest. The smooth, shaven lawn, the proper distribution of small trees and ornamental shrubs, kept constantly pruned, the preservation or cultivation of single trees, groups or thickets, in places set apart for such ornamentation; the soft, grassy walks between lots; the winding, well kept roads, and the more or less lofty and elaborate central monument, showing through the rich green foliage here and there, and all kept, every lot, in perfect order--this is our idea of what a cemetery should be, and it is what we aim for in Homewood Cemetery."

We shall show in later issues other illustrations and matter from the Homewood book.

HANDSOME EXEDRA CEMETERY MEMORIAL

The Von Zedtwitz memorial, illustrated in the photograph herewith, is one of the finest private memorials that has been erected the past year. It embodies an un-

in October, 1909, and Mary Elizabeth Breckenridge Caldwell, the Baroness Von Zedtwitz. The contract was made by the baroness, who died in December, 1910, some

the Harrison Granite Co., of New York City.

The architectural treatment of the piers that form the ends of the exedra



BARONESS VON ZEDTWITZ MEMORIAL, LOUISVILLE, KY.

usually dignified architectural rendering of the exedra form of memorial and the symbolic group that forms the central feature of the design is an original conception by Gilbert Bayes, the well-known London sculptor.

The memorial stands in Cave Hill Cemetery, Louisville, Ky., and is substantially 30 by 20 feet in ground dimensions. The statues, about 8 feet high, are portraits of Mary Guendaline Byrd Caldwell, who died

months subsequent to making the contract, which was executed at her chateau in Thun, Switzerland. This important group is cut from one piece of Italian marble and was executed under the personal supervision of the sculptor in London, Gilbert Bayes, who has produced many important works and been awarded prizes by art societies in England.

The work was executed and erected by

and of the back of the surrounding wall embody interesting variations of design in this popular form of memorial, and the details have been successfully harmonized with the general style of the work throughout. The burning funeral urn and its support that surmounts the posts at either side has been very effectively utilized as a symbolic decoration.

ASKED AND ANSWERED

An exchange of experience on practical matters by our readers. You are invited to contribute questions and answers to this department

Forms for Perpetual Care Deeds.

"Kindly mail us any form of a deed that you may have in which is embodied a perpetual care clause. Some of our lot owners insist on a clause of this nature being set out in our deeds. They feel that they have no assurance of future care unless it is so specified in the deed to their lot. Please advise if all well regulated cemeteries embody this clause in their instruments through which they convey cemetery property to the individual."—W. P., Ala.

Following are several forms embodying perpetual care agreements:

Mount Greenwood Cemetery, Chicago:

Perpetual Care Agreement.

In consideration of the payment in full of the purchase price of the within described lot, the Mount Greenwood Cemetery Association agrees to set apart as a trust fund for the perpetual care of said lot the sum of..... Dollars (\$.....) under the following conditions:

The said sum shall be held, together with other trust funds, entirely separate and apart from the other funds of said association. The association agrees to use the utmost care and discretion in safeguarding the funds so held in trust, in selecting depositories and in making investments; and agrees to make good any loss or diminution in said funds, arising from its failure to take such precautions as may be reasonably expected and required.

The said association further agrees that it will file with the County Court at least once in two years a statement under oath of the total amount of the funds in its hands as trustees under this and similar agreements, and a statement as to how such funds are invested. The said association also agrees to make public the names of such custodian or custodians as it may select from time to time, as depositories for the funds accruing to it as trustee under this agreement.

The Mount Greenwood Cemetery Association guarantees perpetual care of the above lot so long as it shall be used as a place of burial by the purchaser above specified, his heirs and devisees, and will retain as payment for such perpetual care the income from the fund.

The term "Perpetual Care" shall mean the cutting of the grass upon said lot at reasonable intervals; the raking and cleaning of the lot; the pruning of the shrubs and trees, and such work as may be necessary to keep the lot in good and neat condition; meaning and intending to continue forever similar work to that now regularly done upon all the lots and graves in Mount Greenwood Cemetery along these lines. In addition to this, the said association hereby binds itself to keep in repair and maintain in good condition the enclosures, buildings, drives, walks and borders in said cemetery.

Under this agreement, however, the said association does not bind itself to maintain, repair or replace any gravestones or monumental structures erected upon the lot or the graves therein, nor to plant flowers or ornamental plants, nor to maintain mounds upon the graves, nor to do any special or unusual work.

It is agreed that in the event of the refusal or failure of the said Mount Greenwood Cemetery Association at any time to perform the work herein agreed to be done in a reasonable and proper manner, after due notice in writing has been served upon it, and upon the subsequent legal finding of a court of competent jurisdiction that such default has occurred and continues, upon the suit of any party in interest, it will at once surrender to such court, to be placed in the possession of other trustees to be appointed by it, the trust fund remaining in its hands as above set forth: such fund to be administered by the new trustees and the income arising to be devoted to the purpose of perpetual care as set forth in this agreement, it being understood and agreed, however, that the surrender of such fund in the above

specified manner shall release the said association from all further obligations under this agreement.

The said association further reserves to itself the right at its option to surrender the trust funds remaining in its hands and accruing under this agreement, to a court of competent jurisdiction in Cook County, Illinois, with the request that other trustees be appointed by such court to carry out the terms of this trust, and such surrender upon the part of said Cemetery Association of the funds as aforesaid shall release said association from all further liability under this agreement.

This is the perpetual care agreement printed upon the back of all deeds to lots purchased since January 1, 1910.

Oak Woods Cemetery, Chicago:

Know all Men by these Presents: That the Oak Woods Cemetery Association, by....., its President, in consideration of..... Dollars (\$.....), to it paid by....., the receipt whereof is hereby acknowledged, does hereby grant, bargain, sell, and convey to the saidheirs, the following lot of land in the cemetery of said association, known and designated as Oak Woods Cemetery, situated in the town of Hyde Park (Chicago), County of Cook, and State of Illinois, viz.: Lot No..... In Division..... Section Letter..... as per recorded plat of a portion of said Oak Woods Cemetery, recorded in the Recorder's office of Cook County, aforesaid.

Including perpetual care of said lot. The term "Perpetual Care" shall mean the cutting of the grass from May 15 to October 1 each season; watering the grass for the same period each season; composting, seeding and grading the lot once in five (5) years, and keeping all the graves level with the surrounding surface.

This Agreement, made and entered into thisday of..... A. D. 19...., between The Oak Woods Cemetery Association, a corporation of the State of Illinois, located and doing business in the City of Chicago, County of Cook and State of Illinois, party of the first part, and..... of the City of..... County of..... in the State of..... of the second part:

Witnesseth: That the said, The Oak Woods Cemetery Association, part of the first part, for and in consideration of the payment to it by the said second party of the sum of..... Dollars (\$.....), the receipt of which is hereby

acknowledged, does hereby, for itself and its successors and assigns, covenant and agree to and with the said party of the second part..... heirs and assigns, to give and perform, or cause to be given or performed, annually, so long as the Oak Woods Cemetery shall exist, the care, work and improvements following, in or on Lot No....., in Division....., Section Letter....., in Oak Woods Cemetery, standing on the records of the Association at this time in the name of....., to-wit:

In Witness Whereof, The Oak Woods Cemetery Association has caused these presents to be signed, in duplicate, by....., its President, and attested by....., its Secretary, and its corporate seal to be hereto affixed, and the said.....ha.....hereto sethis hand and seal., the day and year first above written.

THE OAK WOODS CEMETERY ASSOCIATION.

Secretary.

President.

Graceland Cemetery, Chicago:

Form of Bequest of Money for the Care of Lots.

I give and bequeath to the Trustees of the Graceland Cemetery Improvement Fund, a corporation created by and existing under the laws of the State of Illinois.....dollars, in trust to invest and reinvest in the same, and apply the net income thereof from time to time as to said corporation shall seem expedient to the improvement and embellishment of Lot..... in Section..... in Graceland Cemetery, or for the repairing, preservation, renewal or ornamentation of any erection thereon.

Make checks payable to the Trustees of the Graceland Cemetery Improvement Fund, or order.

Cribbing Device for Graves.

Editor Asked and Answered Dept.: "I was told some time ago about a device for preventing the caving in of graves, but can't recall the manufacturers, but thought you could inform me. Would thank you to let me know."

MOUNT ZION CEMETERY CO.

Darby, Pa.

[Is some reader able to tell us whether the United States Portable Cribbing Co., of Pittston, Pa., who formerly advertised a portable cribbing construction for this purpose, is still selling it?—Ed.]



Plans for the removal of 140,000 bodies from the cemeteries within the city limits of San Francisco, Cal., are maturing under the leadership of the directors of Laurel Hill, Masonic and Odd Fellows' cemeteries associations. At a recent meeting it was decided that the last of the bodies shall be removed by June, 1914. About 3,000 bodies have so far been removed, and of those that remain in the condemned cemeteries about 35,000 cannot be traced to those responsible for their disposition. These will be moved under a plan to be perfected. At the above meeting a motion was made to have these bodies cremated, but that motion was lost. After considerable discussion it was de-

cided that the division of proceeds from the final sale of the properties should be on the basis of the number of square feet of ground owned by each person rather than on the amount of money paid for each plot, as originally proposed. The total value of the properties has been estimated at from seventeen to twenty-five millions.

The North Park Improvement Club, of Fresno, Cal., has been discussing the removal of the Chinese cemetery to a location farther from town.

The appointment of a receiver has been asked for the Highlands Cemetery Association of Gary, Ind. The cemetery has an office in Indianapolis.

A legal fight covering nearly five years by the minority stockholders of the Pine-lawn Cemetery Co., New York City, to compel the officers and directors of the company to account on the ground that the officers have devoted themselves to selling their own stock rather than cemetery lots, resulted in a decision recently by Supreme Court Justice Gingerich in favor of the stockholders.

On a charge of embezzlement, T. N. Campbell, superintendent of Mt. Hope Cemetery, Carthage, Mo., is being held to await trial.

On January 6 State Senator Bagley, of Boston, introduced a bill in the Massachusetts legislature, on petition of proprietors of Pine Grove Cemetery of Milford, Mass., that all personal property held by cities, towns, religious societies or cemeteries for the perpetual care of graves, shall be exempt from taxation, but the act shall not apply to cemetery corporations who divide their profits and income among their stockholders. This is the result of the recent State Supreme Court decision. In the same connection there have been paid into the city treasury, under protest, \$18,040 as personal taxes levied by the Boston assessors on the Forest Hill Cemetery, and \$3,819.56 as personal taxes on the Woodlawn Cemetery. This is the first time in the history of Boston that cemetery property has been taxed by the assessors. On January 28 the question was discussed at the state house by the Committee on Taxation. Two bills have been introduced, both covering the funds of every cemetery in the state, and each has a second section asking that any tax that has been levied may be abated.

There is trouble in the Oak Park Cemetery Association of Chicago. The directors have recently taken legal steps to ascertain the details of an alleged appropriation of their choicest lots by the former secretary and treasurer of the association.

Another incident showing what an uphill matter it is to advance in cemetery improvement to meet modern ideas is that connected with the effort of the superintendent and authorities of the SS. Peter and Paul Catholic Cemetery, St. Louis, Mo., to do away with grave mounds. Recently another section was added to the improved grounds and no mounds was the order. Protests of lot owners immediately came forth and meetings have been held to compel a return to this very nearly obsolete fashion of finishing graves.

Lot holders in the Methodist burying ground, Philadelphia road, Baltimore, Md., recently held a mass meeting to discuss plans to prevent the trustees of the cemetery from disposing of the property. Those protesting say that if the governing body takes any further steps toward disposing of the property the case will be taken to court. The protest is caused by the re-

fusal of the trustees to provide lots elsewhere for the bodies buried in the cemetery. They agreed to open the graves, take up the bodies and move them to any other places.

The handsome new entrance at Riverside Cemetery, Dowagiac, Mich., has just been completed and adds much to the attractiveness of this spot. The entrance is composed of four stone pillars, two about eight feet high and two about sixteen feet high with a solid stone wall extending to the sides of the driveway. At the base of this wall cement has been laid to the width of about a foot. Along the walk to the cemetery a handsome iron fence has been put up and with the beautiful shade trees along the drive the entrance is all that one could wish for.

Intense interest is shown by residents of Nassau County, N. Y., in the Maloney bill, which if it passes the state senate will deal a deathblow to the project to establish a great mausoleum at Merrick, L. I. The bill has passed the house by a vote of 88 to 20, but some opposition is expected in the senate. However, some forty petitions are in circulation among the taxpayers which will be presented to the supervisors at their next meeting in the event of the bill being defeated in the senate.

A cemetery trust is claimed to exist in Toronto, Canada, and the legislature is to be asked to put all the cemetery trusts under the control of the Ontario Railway Board.

The Mt. Washington Cemetery Association, Cincinnati, O., filed a statement recently refusing to take a bequest of \$200 given it by Deborah A. Langdon in her will. The will gave the association \$200 and directed that it be invested and the proceeds used for the graves of herself and husband. The association stated that it had adopted a rule refusing to take bequests of this nature because the trustees serve without pay and did not wish to be responsible for the money.

There seems little doubt but that the bill in the Massachusetts Legislature framed to give the money earned by public cemeteries back to the cemeteries rather than to the general treasury funds of cities will be favorably reported.

A profitable speculation in cemeteries, involving property in five states worth \$4,000,000, was revealed by a suit brought in the New York Supreme Court. Francis E. Baker and Reese Carpenter, the parties to the litigation, six years ago formed a partnership to get control of graveyards and then to divide them into building lots if they did not pay for burial purposes. Baker, who brings this action for a dissolution of the partnership and an accounting, declares that fortune was in sight for the promoters. In opposing Baker's application Carpenter holds that if any agree-

ment existed between them it was illegal, because made for the purpose of freezing out other stockholders in the corporations acquired. The court reserved decision.

Dewey, Kan., needs a cemetery. The only cemetery near at hand is a privately owned burial ground some two miles north.

It is stated that no attempt has been made to tax the invested funds of the Harmony Grove and St. Mary's Cemetery Corporations of Salem, Mass., notwithstanding the decision of the Supreme Court in the Miford Cemetery case.

According to its local press, Spencer, Mass., appears to have lost track of two funds which were evidently intended by the donors to be kept in trust forever. One is the Drury fund, now amounting to \$1,166.95, which originated in 1880, the income from which is to be devoted to the care of aged worthy persons; the other is the old cemetery fund, now \$4,138.38, which was instituted in 1872, the income to keep the burying ground in repair.

The lot owners of Cedar Hill Cemetery, St. John, N. B., are seeking incorporation.

San Francisco has struck a snag in its work of changing the old free burial ground, the City Cemetery, into Lincoln Park. The Italian Beneficial Society is offering a strong resistance unless the city will bear the expense of transferring the bodies, the cost of which is estimated at \$10,000.

Speculation in cemetery lots is a question at present troubling the city officials of Elgin, Ill. The fact has been discovered that the city had probably been swindled out of several thousand dollars by "cemetery lot speculators," by the repurchasing of lots by the city in the old Elgin City Cemetery from the original purchasers. An offer to sell a lot in the old cemetery for \$21, for which only \$10 was paid, brought it about.

The municipality of Lewistown, Mont., will, in all probability, shortly take over the cemetery owned by the Lewistown Cemetery Association, reimbursing that organization to the extent of \$1,500 for permanent improvements made. The unsold lots and other realty on the present selling basis will bring in ultimately, it is estimated in a preliminary report, about \$30,000, so that the association's object in seeking the transfer is not gain, it is asserted, but to have the cemetery managed and handled to the best advantage.

The Greenlawn Cemetery Association, Springfield, Mo., having failed to make proper reports to the Secretary of State relative to capital stock and other facts required by law, will compel them to pay default judgments in three fines of \$50 each.

At a recent meeting of the Executive Committee of Riverside Cemetery, Berkeley, Va., Mr. W. W. Robertson was unanimously requested to accept the general su-

pervision of the cemetery, which he agreed to do. He immediately requested Mr. H. C. Oldson, the secretary of the company, who had intended leaving March 1 for Baltimore, to reconsider and remain with the company, which he also will do.

Improvements and Additions.

The improvement scheme of the new cemetery, Graceland, at Racine, Wis., is maturing. A proposition is on foot whereby by the exchange of strips of land an attractive parked boulevard may be constructed. Messrs. Hare and Hare, landscape architects, of Kansas City, Mo., have submitted plans and specifications for the improvement of the tract.

A movement has been started to clear up and greatly improve the appearance of the Old Baptist Cemetery at Freehold, N. J.

Mr. Robert Brautigam, of Brooklyn, N. Y., will build a mausoleum on his plot in Grove Hill Cemetery, Rockville, Conn. It will be 13 feet by 16 feet and 14 feet in height, and will be constructed of Barre granite, with slate crypts faced with Italian marble. Six bodies will be provided for. The cost will be in the neighborhood of \$8,000 and it will be the first mausoleum erected in the cemetery.

A water system has been installed in Mt. Hope Cemetery, Urbana, Ill.

After ten years' effort, Greenwood (Brooklyn) Cemetery officials have succeeded in acquiring a strip of property at Ninth avenue and Twentieth street, where a fine new entrance is to be constructed. This property formed a sort of cul-de-sac in the cemetery and some florists' buildings, etc., are standing upon it which will have to be removed. There may be more delays to the building project owing to unexpired leases. The erection of a new entrance will provide a fitting approach to one of the most beautiful parts of the cemetery and to the Mackay mausoleum, one of the most imposing and most costly structures of its kind in America.

Plans for the improvement of the new cemetery, just outside of St. Louis, Mo., have been agreed upon. Two miles of macadamized roadway will be made in the park and the cemetery proper, and considerable garden work, with lakes and flowers, will be provided.

Improvements are planned for the Home of Peace Cemetery, Portersville, Cal., with a view to making it an attractive spot.

The last dollar of debt has been cleared off the new part of Walnut Hill Cemetery, Belleville, Ill. It comprised twenty-two acres, and the tract has been laid out and platted. This annex to the old cemetery is separated from the main burial grounds by a small tract of eight acres, and the city is being urged to purchase it. Considerable improvement work is proposed to be done this season.

New Cemeteries.

There has been considerable trouble of late in Vancouver, Wash., over the matter of more cemetery land, and it has resulted in some appeals to the courts. The City Council, in order to the better inform itself on the question, recently attended an illustrated lecture given in Vancouver by Howard Evarts Weed, landscape architect of Portland, Ore., and author of "Modern Park Cemeteries." In the meantime there is said to be not a lot for sale in the city cemeteries.

A cemetery containing about twelve acres is being laid out at Brunswick, Md. It is located in the northeast part of town and is very hilly in character. The old burial ground of the town is practically filled up and a new cemetery is a necessity.

The St. Joseph's Cemetery Association of Utica, N. Y., has added twelve acres of land to its holdings for cemetery purposes.

If two ordinances are favorably acted upon, a new cemetery within the city limits of Spokane, Wash., and adjoining Greengood, will be another addition to the Spokane chain parks scheme.

An organization has been effected for the purpose of beautifying and keeping up the Horner and Mt. Tabor Cemetery in Quemahoning Township, Pa.

Iowa City, Ia., is to have a new tract of land for cemetery purposes, embracing 48 acres, at a cost of \$12,000. It lies just east of the present east line of Oakland Cemetery.

Manchester, N. H., is to have an addition to Pine Grove Cemetery. An adjoining tract is to be purchased at a cost of \$8,000. A large amount of improvement work has been accomplished in Pine Grove Cemetery during the past year.

The Anaconda Hill Cemetery Association has been organized at Anaconda, Mont.

An opportunity to purchase Wild Rose Cemetery, a ten-acre tract recently laid out and graded, south of Webb City, Mo., has been given the city by a corporation which has been using the tract for a cemetery for some time. The price as named in the proposition is \$17,500. Additional need of cemetery facilities is beginning to be felt by the city.

Cemetery Reports.

The annual report of Mr. J. C. Cline, superintendent of Woodland Cemetery, Dayton, O., states that the severe weather of last winter killed lots of myrtle and it was necessary to replant over 2,300 graves. During the year 659 grave markers were set and concrete foundations made for them, 21 foundations were built for monuments, requiring 4,596 cubic feet of concrete in their construction. Owing to the rapid growth of the grass, due to cool weather and frequent rains, resort had at times to be made to scythe mowing, which is almost a lost art in the country. During one of the

heavy downpours, in which 2¾ inches of rain fell, the receiving vault floor was flooded to a depth of 16 inches. Since then the curbing has been raised around the areaway six inches, which will prevent a recurrence. The use of calcium chloride on the roads kept them in fine condition, notwithstanding the heavy dashing rains. They were not damaged much, except those having cobble stone gutters. The binding qualities of calcium chloride prevented the water from raveling and cutting ruts in the roads. About 2½ acres of good lots have been prepared for the market which required about 12,000 cubic yards of earth for grading and filling.

PERSONAL.

Mr. George Burnap, Official Landscape Architect, of Washington, D. C., delivered a lecture in the course of Landscape Design, at the University of Illinois, in January, and Prof. J. S. Pray, of the Harvard School of Landscape Architecture, in February. The students in advanced design have been studying cemetery design under the direction of Mr. W. N. Rudd, president of Mt. Greenwood Cemetery, Chicago, and member of the Agricultural Advisory Board of the University of Illinois. The course is a very thorough one and calculated to impart a broad fund of information on the general subject.

OBITUARY.

Theo. F. Mansfield, formerly of Mount Feake Cemetery, Waltham, Mass., passed away on February 10, 1913. Funeral services were held in Newton Cemetery on February 12.

Stewart D. Downs, 80 years old, superintendent of Mount Olivet Cemetery, Baltimore, Md., for forty-eight years, died of pneumonia in his home at the cemetery on January 25. Until two days before his death he was a familiar figure on the Frederick road. Despite his advanced age, he went about his work daily, and his work was his pleasure. Mr. Downs was born in Baltimore. He is survived by his widow, one son, one daughter and six grandchildren.

The funeral of Robert J. Gilmore, assistant superintendent of public cemeteries, Lowell, Mass., was held on January 26 in the chapel of Edson Cemetery. The Masonic service was conducted and burial was in the family lot in Edson Cemetery. Mrs. Gilmore, who was prostrated with her husband by pneumonia, was unable to be present.

We regret to record the death of Mr. Charles E. Walbridge, the senior member of Walbridge & Co., of Buffalo, N. Y., manufacturers iron garden furniture etc., On account of a long illness Mr. Walbridge had not taken any active part in the business for the past three years. The business will continue otherwise unchanged.

Tarvia

*Preserves Roads
Prevents Dust*



Center Ave., Graceland Cemetery, Chicago, Constructed with Tarvia X

Tarvia Solves Cemetery Problems

The reasons which have led Graceland Cemetery, Chicago, to extend its Tarvia work year by year until all its roads are so treated, are reasons which will hold good for any cemetery or city park.

Cemetery roads must be clean and handsome and Tarvia provides for that by creating a smooth, water-proof surface which does not develop mud, but drains instantly to the gutter.

A Tarviated road is fit to walk on even in a heavy rain.

Cemetery roads must be capable of withstanding the transportation of heavy monuments. In its matrix of Tarvia, the stone simply yields slightly and is not broken down and crumbled by the crushing weights. Under such traffic a Tarviated road improves as by a rolling.

A cemetery road must be first-class and yet economical, and Tarvia is finding favor because it both improves the road and reduces costs.

Every cemetery should adopt the policy of substituting Tarviated macadam for plain macadam as rapidly as possible until all its roads are so treated.

Booklets on request.

Barrett Manufacturing Company

New York, Chicago, Philadelphia, Boston, St. Louis, Cleveland, Pittsburgh, Cincinnati, Kansas City, Minneapolis, Seattle, Corey, Ala.
PATERSON MFG. CO., Ltd.—Montreal, Toronto, Winnipeg, Vancouver, St. John, N. B., Halifax, N. S.



TOPICAL INDEX to OUTDOOR LITERATURE

An Index to articles on Gardening, Forestry, Park, Cemetery and Civic Improvement and kindred subjects in leading general and special magazines

Subscriptions will be received for any magazine or periodical at club rates with Park and Cemetery. Publications in which articles appear are listed below, and referred to by abbreviations, thus S. L. 8:67-8, Feb. 09, means: Suburban Life, vol. 8, pages 67-8, February, 1909.

Single copies should be ordered direct from the publications at addresses given below

PUBLICATIONS INDEXED AND ABBREVIATIONS USED

American Botanist, Joliet, Ill. (A. B.), 75c year; 20c copy.

American City, The, (Am. C.), New York, \$2.00 year; 25c copy; back numbers, 25c.

American Florist, Chicago (A. F.), \$1.00 year; 5c copy.

American Homes and Gardens, New York (A. H. G.), \$3.00 year; 25c copy.

Architectural Record, New York (Arch. Rec.), \$3.00 year; 25c copy.

Art and Progress (A. & P.), Washington, D. C.; \$1.50 year; single copy 15c.

Canadian Florist, The, Peterboro, Ont., Can. (C. F.), \$1.00 year; 10c copy.

Country Life in America, New York City (C. L. A.), \$4.00 year; single copy, 35c.

Country Gentleman, Philadelphia, (C. G.), \$1.50 year; 20c copy.

Century Magazine, New York City (Cent.), \$4.00 year; 35c copy.

Chautauquan, The, Chautauqua, N. Y. (Chaut.), \$2.00 year; 25c copy.

Craftsman, The, New York City (Cr.), \$3.00 year; 25c copy.

Embalmer's Monthly, Chicago (E. M.), \$1.00 year; 10c copy.

Fern Bulletin, Joliet, Ill. (F. B.), 75c year; 20c copy.

Florists' Exchange, New York City (F. E.), \$1.00; single copy, 5c.

Florists' Review, Chicago (F. R.), \$1.00 year; 5c copy.

Fruit Grower (F. G.), St. Joseph, Mo., \$1.00 a year; 10c copy.

Gardener's Chronicle of America, Jersey City, N. J. (G. C. A.), \$1.00 year; single copy, 10c.

Garden Magazine, Garden City, N. Y. (G. M.), \$1.50 year; single copy, 15c.

Gartenkunst, die, Frankfurt, Germany (German), G. K., \$4.00 year; 50c copy.

Good Roads, New York (G. R.), \$1.00 year; single copy, 10c.

Horticulture, Boston (Hort.), \$1.00 year; single copy 5c.

House Beautiful (H. B.), Chicago; \$3.00 year; 25c copy.

House and Garden, Philadelphia (H. G.), \$5.00 year; 50c copy.

Independent, The, New York (Ind.), \$3.00 year; 25c copy.

Landscape Architecture (L. A.), Harrisburg, Pa.; \$2.00 year; 50c copy.

Minnesota Horticulturist, Minneapolis (M. H.), \$1.00 year; single copy, 10c.

Moeller's Deutsche Gaertner-Zeitung, Erfurt, Germany, (German), M. D. G., \$3.00 year; 10c copy.

Monumental News, Chicago (M. N.), \$1.00 year; single copy, 10c.

National Nurseryman, Rochester, N. Y. (N. N.), \$1.00 year; single copy, 10c.

Revue Horticole, Paris (Rev. Hort.), French, \$4.50 year; 50c copy.

Scientific American, New York (Sci. Am.), \$3.00 year; 10c copy.

Suburban Life, New York (S. L.), \$3.00 year; 25c copy.

Civic Improvement, Home Grounds.

City Planning, Efficiency in. Illust. Am. C. 8:139-44. February, 1913.

Fountains, by Lorado Taft. Illust. A. & P. 4:892-900. March, 1913.

Monumental Sculpture, by Royal Cortissoz. Illust. A. & P. 4:885. March, 1913.

Recreation, Public; Does It Pay? by Henry S. Curtis. Am. C. 8:144-7. February, 1913.

Social Order in an American Town, by R. S. Bourne. Atlantic Monthly, New York. 111:227-36. February, 1913.

Town Beautiful a Dream No Longer, by A. I. Blessing. Illust. Harper's Bazaar, New York. 47:80. February, 1913.

Gardens and Landscape Gardening.

Bocken Estate on Lake Zurich, by Garden Architect Schaedlich, G. K. (German). 15:29-32. February, 1913.

Cemetery Designs, Competition for; Result in Erfurt. M. D. G. 28:73-80. February 15, 1913 (German).

February and the Garden. Illust. A. H. G. 10:66. February, 1913.

Flower Garden, First Prize, by Mrs. A. G. Peterkin. Illust. Good House-Keeping, New York. 56:216-9. February, 1913.

Flowers for a Seaside Nature Garden, by A. G. Eldredge, C. L. A. 23:76. February, 1913.

Forestalling Spring Indoors; Pussy Willows, etc., Indoors, by E. M. Colson.

Illust. House Beautiful. 33:45. January, 1913.

Garden-Art in Rheingau, by J. Mueller. Illust. G. K. (German). 15:17-19. January, 1913.

Houses that Fit the Landscape, by G. E. Duncan. Illust. S. L. 16:75-6. March, 1913.

Hardy Garden; Starting One, by Mary Richardson. Illust. S. L. 16:151. March, 1913.

Old-Fashioned Flower Garden, A Prize-Winning, by R. D. Comstock. Illust. S. L. 16:147-8. March, 1913.

Perennials, Gilt-Edged for Early Spring, by A. T. Thompson. Illust. S. L. 16:84. March, 1913.

Tiny Garden; What We Did With It; by H. N. Holmes. S. L. 16:169. March, 1913.

Trees, Shrubs and Plants.

Chestnut Trees, Ornamental or Cultivated, Treatment of, by Roy G. Pierce. Illust. Am. C. 8:157-9. February, 1913.

Iris, the Cultivated. Illust. By W. N. Clute. A. B. 19:6-12. February, 1913.

Mountain Spleenwort, by W. N. Clute, Illust. A. B. 19:13-15. February, 1913.

Shade Trees, Protection of, by H. J. Neale. Illust. Am. C. 8:153-6. February, 1913.

Shrubs, Their Culture and Care, by D. A. Dunlap. Illust. C. F. 8:27. February 14, 1913.

Starting Plants Indoors, by F. E. Rockwell. Illust. A. H. G. 10:67-70. February, 1913.

Trees Instead of Grain. Review of Reviews, New York. 47:219-20. February, 1913.

Top-Working Trees in the Nursery, by E. A. Smith. Illust. N. N. 21:56-7. February, 1913.

BOOKS AND PUBLICATIONS.

"The Book of Grasses," by Mary E. Francis, recently issued by Doubleday, Page & Co., Garden City, N. Y., as another volume of their "Nature Library," is one of the most elaborate, handsome and complete works on this subject ever written, and will be of much interest to amateur and professional alike. This is the first book written for the amateur which takes up in a simple yet comprehensive way the common and rare species of grass. The work is thoroughly scientific in its treatment without being forbidding or dull. The author has a vast amount of most interesting matter and the layman is astonished in reading Miss Francis' volume to discover a wealth of beauty and variety in what is oftentimes regarded as a rather unattractive side of nature. The illustrations are very beautiful and are the result of painstaking care and selection. They are all from original photographs by Arthur Eldredge and H. H. Knight, of Cornell University. Sixteen of these have been reproduced in full-page color plates, while sixty-four are in black and white. The book contains 350 pages, is handsomely bound and printed, and sells for \$4.35, postpaid, by Doubleday, Page & Co., Garden City, L. I., N. Y.

"Colorado Springs, the City Beautiful," is the title of a very interesting, thorough and complete report on a general plan for the improvement of Colorado Springs, prepared by Charles Mulford Robinson, of Rochester, N. Y. It treats in a definite, suggestive way of every phase of civic development under the general heads: Steam Railroads; Street Plan; Street Development; Recreation Provision, and Miscellaneous, and shows many illustrations of good and bad practice in city planning. Mr. Robinson sends with the report a brief note, as follows: "It is a regret to the author that in the publication of this report the local authorities adopted 'The City Beautiful' as a secondary title. As the text reveals, the city convenient and efficient was the object mainly sought. Yet the persistent popularity of the old phrase, as thus evidenced even in official circles, is significant and interesting."

Twenty-fifth annual report of the Purdue University Agricultural Experiment Station, Lafayette, Ind.

Missouri Botanical Garden, St. Louis, Mo.; Bulletin for February, 1913, Vol. 1,



GRAHAM MAUSOLEUM, YOUNGSTON, OHIO

It's a Mistake

to think that a mausoleum must be high-priced. Some people would have you believe that it takes a fortune to build one. So it does in certain cases, but mausoleums, like monuments, may be either simple or complex. Admirable effects are obtained from plain, unadorned marble, even when the outlay is comparatively small.

In order to illustrate this point, we bring the Graham Mausoleum to your notice. This structure was sold to H. R. Lewis, Youngston, Ohio. It may be classed as a mausoleum of medium price and yet there is nothing cheap about it. No fault can be found with either the workmanship or the marble.

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EDITORS
John W. Weston **O. H. Sample**
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No. 2, containing: The New Plant Range; Floral Display During February; The Curator of the Herbarium; The Herbarium; The Easter Bulb Display; The Garden Open Easter Sunday; The International Flower Show; The Engelmann Botanical Club; Statistical Information.

A recent issue of the *Mercantile and Financial Times* contains a descriptive account of the growth of the business of the Philadelphia Lawn Mower Co., from which we quote the following: "There are more than a score of distinct styles of 'Philadelphia' lawn mowers shown in the manufacturers' catalog for 1913. Probably the most notable are the season's new Graham style machines, in 15, 17, 19 and 21-inch sizes, which are all steel, have no front rod to prevent close approach to trees, posts, etc.: have cylinders $6\frac{1}{2}$ inches in diameter and four spiral and one stationary blade made of Vanadium crucible steel, 10-inch driving wheels with a train of gears on each side, and removable box caps to facilitate the withdrawal of the cylinder when the blades need sharpening. Forty-four years ago, in 1869, the first side-wheel lawn mower ever constructed was made here in Philadelphia by the firm of Graham, Emlen & Passmore. The new implement was named 'Philadelphia,' after the city of its birth, and though crude enough when compared with the lawn mowers of today, it created a revolution in the turf cropping, grass cutting methods of its own period. Since 1869 that first 'Philadelphia' lawn mower has had a succession of legitimate descendants and the members of each generation have improved in some more or less important detail over their predecessors."

THE OLMSTED MOLE TRAP.

L. H. Olmsted's Sons, Hasbrouck Heights, N. J., who manufacture a device for trapping ground moles, issue an interesting little book on "Ground Moles: Their Habits and How to Catch Them," that gives much practical information about these annoying borers that have become nuisances in some grounds. The Olmsted mole trap consists of a frame A, constructed with two cross bars in which are



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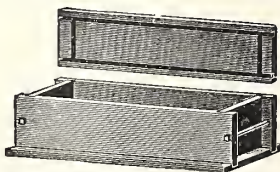
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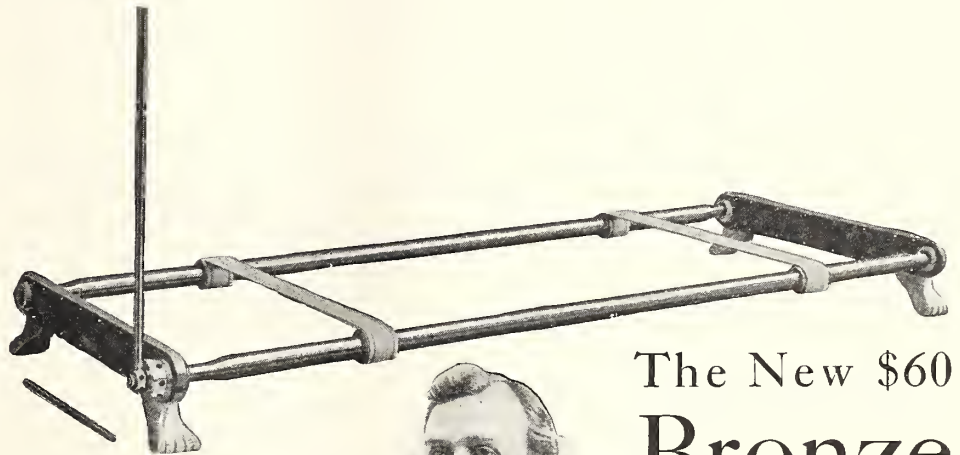
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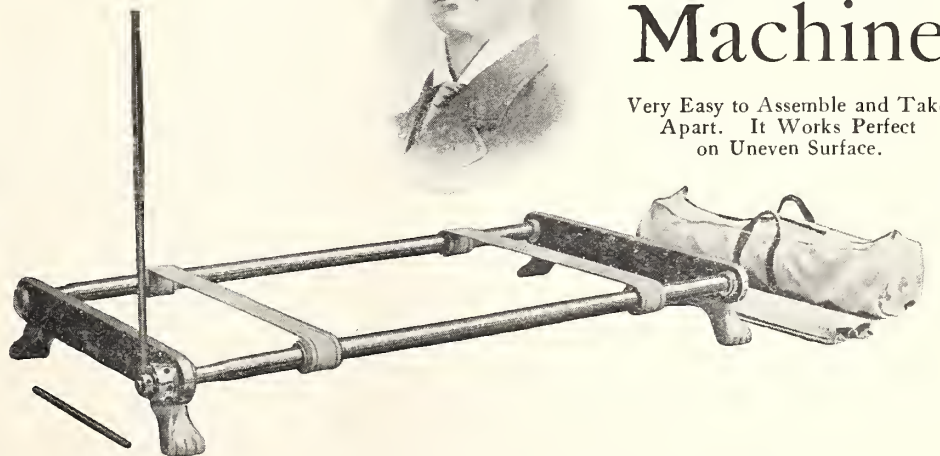
The top cut on this page shows the machine in the adult size. The bottom cut is the machine when adjusted for the child. The canvas cases at end of bottom cut is the machine when packed for transportation.

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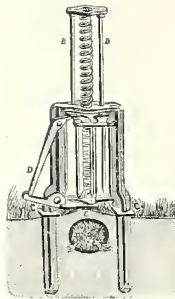


WELLMAN, The Device Man

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Oshkosh, Wisconsin

holes to guide the needle bars B B. At the lower end of the needle bars is attached a plate to which six needles are made fast, three on each side of the plate. To the upper end of the needle bars is attached a platform for the purpose of



Olmsted Mole Trap

holding a weight, either a brick or stone, which serves to operate the trap when set off by the mole. Upon each side of the frame, at C C, projections are made which serve as stops or guides to indicate when the trap is pushed into the ground the right distance to insure the catching of the mole, and also to serve as a support for the trap. To the frame is attached the lever D, and trigger E, both made to work loosely on pivots.

THE COVER ILLUSTRATION.

Cincinnati has many beautiful cemeteries, conspicuous among them being the United Jewish Cemetery, situated at the corner of Gilbert avenue and Duck Creek road, Walnut Hills. This is one of the most beautiful and best kept cemeteries in the state and probably one of the oldest, being es-

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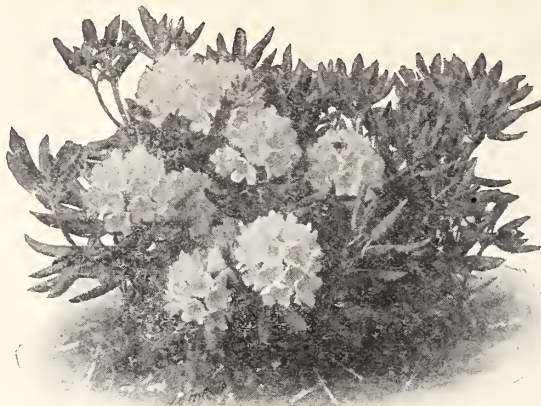
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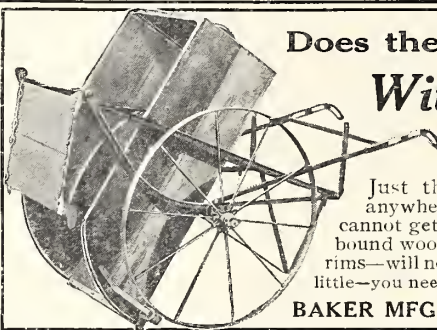
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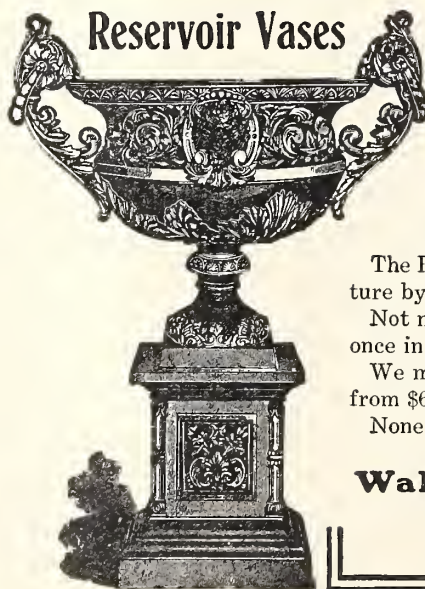
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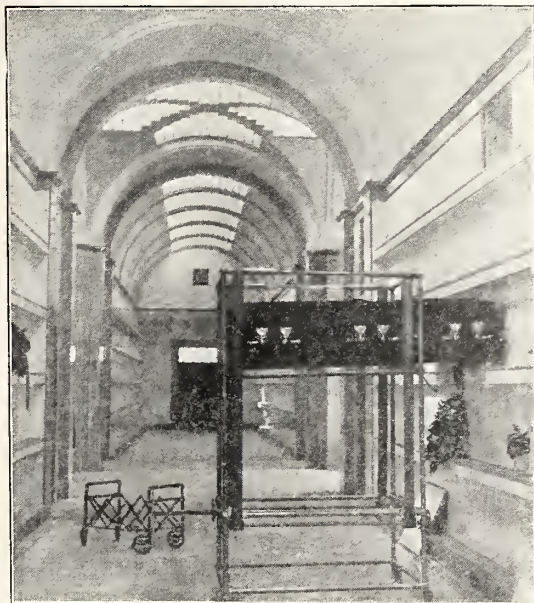
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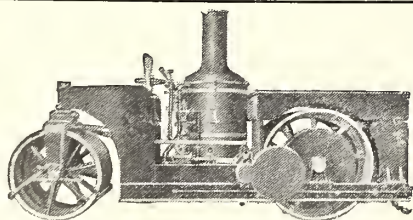
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tablished in 1849. It has been enlarged and improved until it now consists of about 13¼ acres, and is unsurpassed in natural scenery and the beauty of its well kept grounds.

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The Gilbert avenue front and Duck Creek road line is improved with a wall of Rockcastle stone and Indiana limestone, with an iron fence, the total cost being more than \$17,000. The fence, comprising 2,000 lineal feet, was made and erected by the Stewart Iron Works Co., Cincinnati, O., and is a very imposing and substantial enclosure. Our front cover illustration displays the artistic and mechanical effect of this fence, which has created very favorable comment among visitors to the cemetery. It is a design originated by the builders especially for this cemetery, and embodies in its construction their patent three-rib channel rail, adjustable line post and other special features which distinguish the product of the Stewart Iron Works Co.

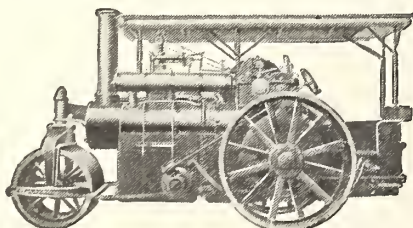
The United Jewish Cemetery is an association of two Jewish congregations known as the Bene Israel and Bene Yeshuren. It is managed by a board of delegates, consisting of six members appointed by each of the two congregations.



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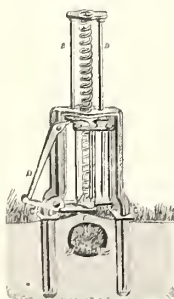
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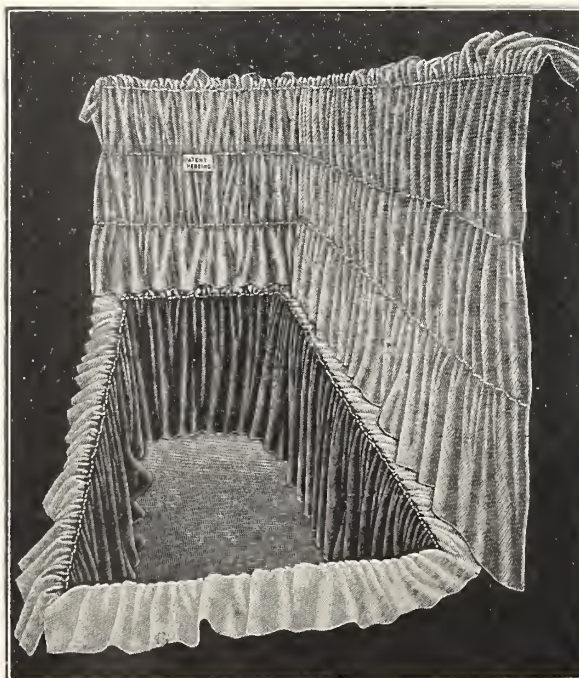
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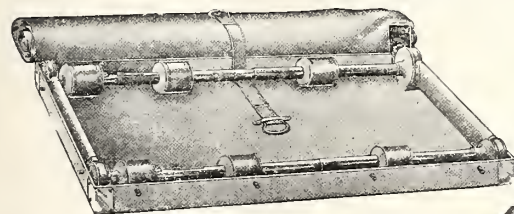
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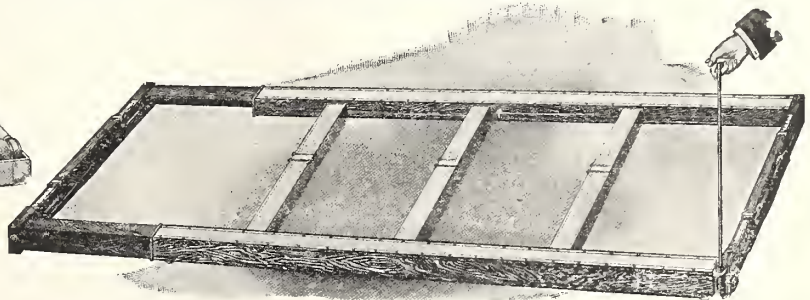
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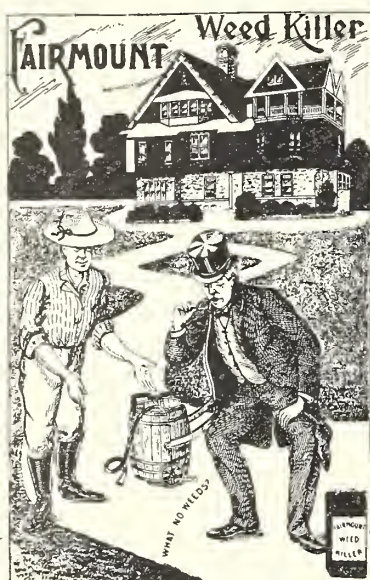
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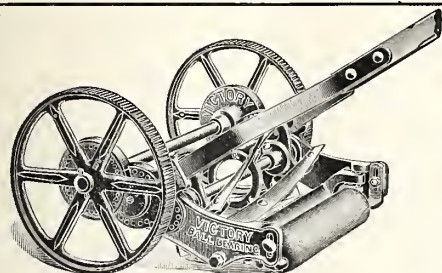
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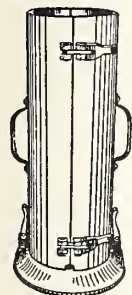
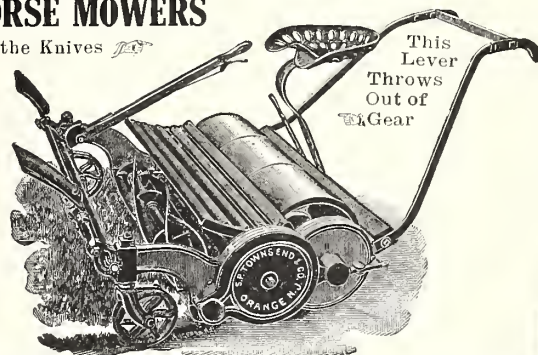
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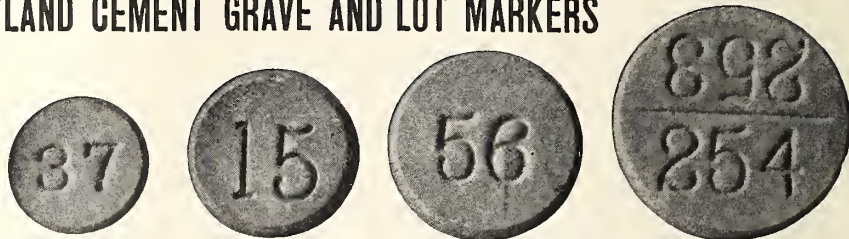
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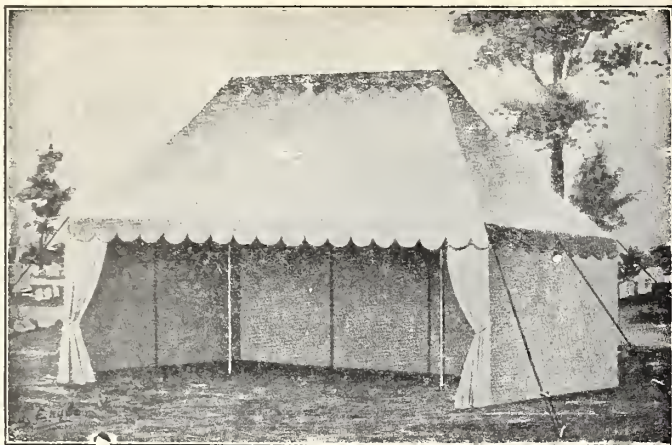
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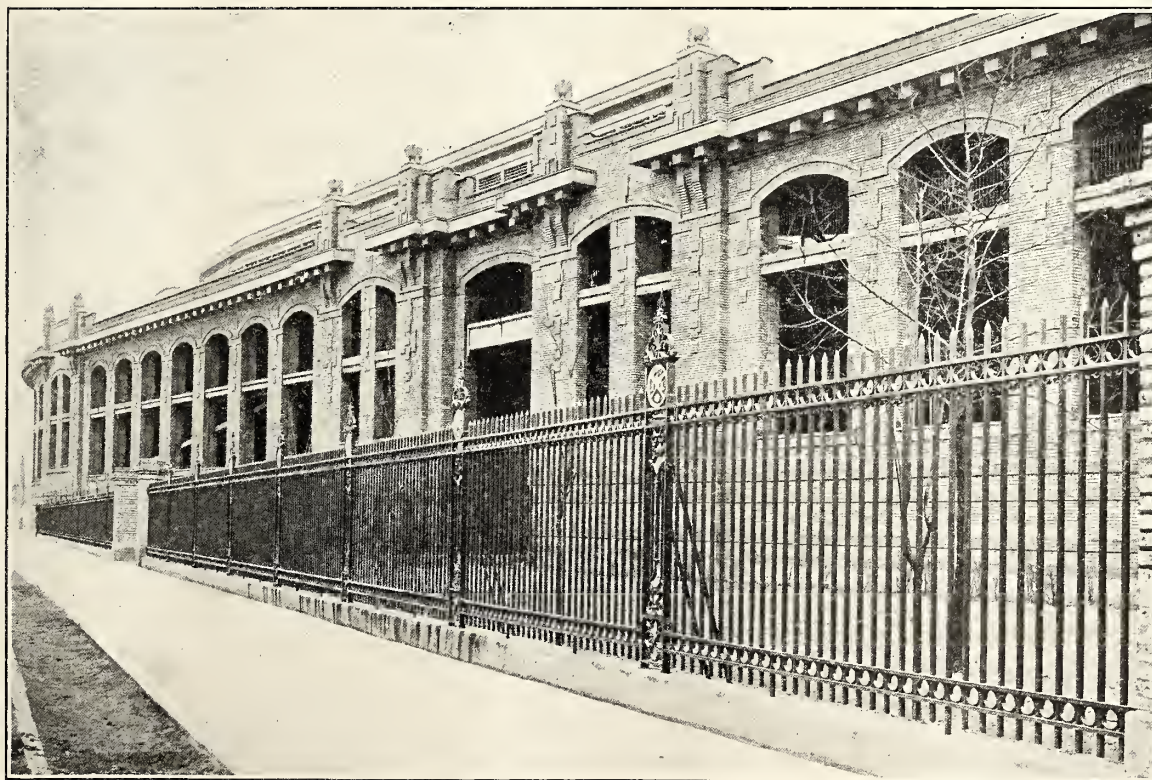
Vol. XXIII.,

No. 2

APRIL, 1913

SPECIAL FEATURES IN THIS ISSUE

Duluth's Great Natural Park System—Spraying Developments in Massachusetts—
National Conference on City Planning—Parking Alum Rock Canyon—Court
Decision on Mausoleum Patent—Forest Hills, a Boston Suburban Cemetery



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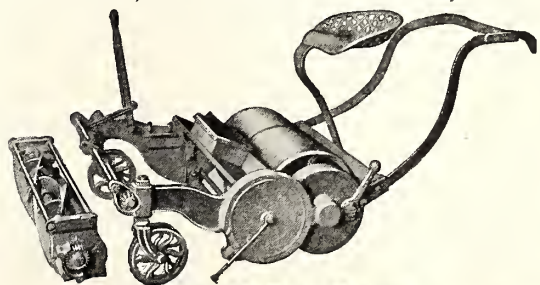
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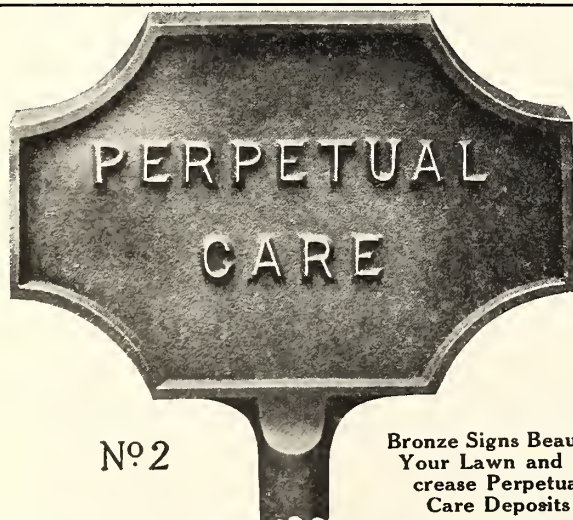
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No 2

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PARK AND CEMETERY AND LANDSCAPE GARDENING

VOL. XXIII

APRIL, 1913

No. 2

EDITORIAL

Quack Tree Surgery

When a scientific or technical discovery is made that attains to a wide degree of popularity in the daily press and the general magazines, it always attracts a following of a certain number of quacks, who take advantage of a little knowledge to practice on the uninformed public for their own financial gain. So it has been to a certain degree with the practice of tree surgery. A great deal of successful work has been done for the treatment of wounded or invalid trees, but there has also been a considerable amount of butchery of trees under the guise of tree surgery, and we have had in these pages recently several warnings from expert tree men in regard to quack methods in tree surgery. We print another one this month in the Department devoted to the Park Association. A number of expert tree men have expressed doubt

as to the invariable success in the practice of filling trees with cement. As has been pointed out, the cavity must first be thoroughly disinfected and treated before the cement is put in, and even then, as Mr. Koehler points out on another page, the operation may not be successful. The growing of the bark over the cement does not always insure successful growth in the interior of the tree. He points out that the interior might still be decayed, even though the bark was growing over the cement. The point is well taken that extreme care should be exercised in treating trees and in selecting men who are scientifically and practically qualified to do the work. Tree surgery is a science that is still in its infancy, and careful study and diagnosis are as necessary as in the case of human surgery.

Book Agent Methods in the Mausoleum Business

One of the genial and persuasive gentlemen who is engaged in booking advanced reservations for berths in one of those prospective mortuary skyscrapers got the wrong name on his follow-up list recently. The result was that one of the leading granite manufacturers of New England, whose office is in New York City, received a letter written on beautiful brown stationery, bearing a picture of a ten-story mausoleum with verandas around each story and reading as follows:

"We will erect in this vicinity a community mausoleum, and your name is one of a selected list of prominent business men of New York to whom we desire to submit our proposition for endorsement and at the same time extend to you an unusual opportunity to become interested in this progressive development. As provided for in our plan, you will receive gratuitously one of the fifty Honorary Vaults of eight crypts upon completion of the sale and erection of the mausoleum, the vault being similar in every detail to a private vault costing \$6,000, but sold in this mausoleum at \$2,250. Kindly state when we may call and consult you regarding this matter."

The granite manufacturer passed this communication on to us and says: "I enclose my contribution to the Community Mausoleum literature and pass my right to a free \$6,000 Honorary

Vault to you, hoping you may use it to good purpose. I have not had the pleasure of a call from the gentleman who signed the letter." This is doubtless a fair example of the book agent methods by which community mausoleums are promoted, and doubtless explains to a certain extent how so many prominent citizens and leading undertakers have been led to allow the use of their names in promoting these structures in their home towns. Doubtless someone who reads these lines has at some time been approached by a carefully worded letter from a publishing concern who was issuing one of those wonderful many-volumed sets of literature with a proposition to donate him a certain number of these volumes for advertising purposes if he would contribute a testimonial to the work. The letter is always followed up by an interview with a highly polished and persuasive salesman who explains at great length the marvelous contents of the said books. After convincing the prospect that he cannot live without the literature, he incidentally reveals the fact that in order to get the free volumes offered he must purchase a certain number of others which would probably cover the entire price of the work. Such letters are common in selling mining stock and books and have been adapted very nicely to the needs of the community mausoleum business.

Editorial Notes

To make it easier to establish public parks and play grounds for children Representative Fraley of Des Moines has introduced in the legislature a bill providing that for the purpose of park making, a city may be divided into several park districts, and that each district may vote a tax for that district for the purpose of establishing therein a park or play ground. Under the present law if a park is established it is at the cost to the entire city and often three-fourths of a city object to the expense because the park is to be located in the other fourth of the city. Hence no park is established whereas under his plan Mr. Fraley believes each section of the city might be willing to establish a park of its own, even if other sections did not.

The active opposition of residents of Long Island, in the vicinity of Great Neck, toward the proposed establishment of an immense mausoleum and cemetery, known as the Repose Mausoleum,

has led to the passage by the Legislature of that State of a bill drafted to prohibit the establishment of additional cemeteries in Nassau County. Another evidence of the fact that the cemetery situation in Greater New York is becoming acute is a bill before the State Legislature providing that cemeteries shall be liable for assessments for street openings and improvements. This, it is claimed, is a measure for the relief of Queens Borough, where highways necessary to traffic are blocked, it is said, by cemeteries. Those favoring the bill claim that some two years ago an amendment of the cemeteries law was passed making it impossible to run any street through these cemeteries without the consent of three-fourths of the lot owners. It is also claimed by advocates of this bill that most of the cemeteries affected are profit-making corporations and are not entitled to the protection of the rural cemeteries law. It is reported that a strong fight is being made against the law.

PARKS AND PARK WORK

DULUTH'S GREAT NATURAL PARK SYSTEM

In the natural scenic beauty that is the chief charm of the picturesque gorges, hills, rivers and forests of the Northwest, few cities have been so lavishly endowed with a magnificent system of natural parks as Duluth, Minn.

Duluth's great park system is founded on the Boulevard drive skirting the hill-top, the picturesque gorges of the streams that intersect it and the border of lake shore and river. The system is supplemented by a number of smaller squares, triangles and parkways, and by playgrounds, and embraces about 250 acres and approximately 17 miles of completed boulevard drive.

The main purchases have been completed and as now designed, with few exceptions, the system is substantially rounded out. The Park Board therefore proposes henceforth to devote its funds to improving the property now in its hands and acquiring additional plots for playgrounds.

The lands included in the parks were acquired at a cost of \$650,000 in money and the donation of additional lands valued at the date of acquisition at \$155,000. The replacement value of the park area is now conservatively estimated at above \$2,000,000.

Within the last few years the policy of improvement has been constantly maintained. Congdon park has been opened to the public by easy ways that make every beauty accessible for those in cars, on horse or afoot; attention has been given to the small squares, the purchase of playgrounds has been continued, the design of the boulevard has been carried forward both to the west and by the permanent improvement to the Snively road, and the board has felt freedom to engage in plans of yet wider scope for the future.

Thirty-two acres of land to complete Lester Park were bought for the sum of

\$35,000. Playgrounds in front of Irving school, at cost of \$3,800. Two lots at the mouth of Chester Park for \$600. The board has now under condemnation several parcels of lands which were selected for additional playgrounds and to complete and round out the entire park system.

Rogers boulevard, begun by W. K. Rogers, has been open to traffic since 1890. It has been likened by travelers to the Corniche of the Riviera and has been praised as excelling any like road in the world. It is under contemplation to carry it beyond Keene's gorge, where another picturesque reach will be crossed, and eventually to Fond du Lac, at the foot of the Dalles. The improvement of the boulevard was the first work taken in hand by the earliest of the enthusiasts for parks; it is still the backbone of the system, and it will be gradually extended until all the length of the city has part



TISCHER'S CREEK, DULUTH PARK SYSTEM.



IN LESTER PARK, DULUTH.

in its beauty: And beyond, one way is the north shore, that will have its fine driveway, and the other the Dalles of the St. Louis.

Lester Park comprises 32 acres on both branches of Lester river. It is one of the

oldest and perhaps the most frequented of parks. This park is peculiarly rich in the large number of forest trees of the original growth, both pines and birches, and here is a glimpse of native wildness that may be preserved forever in its original

charm. The main falls of Lester, breaking over a ridge of granite, present as bold a scenic feature as is found in all the parks. The constant aim of the administrators has been to preserve the natural features so that when one steps off the



VIEW IN CONGDON PARK, DULUTH, MINN.

street car he is at once in the deep woods. Broad driveways skirt the park, connecting with the boulevard system, and numerous foot paths wind through the woods, with a charming surprise at every turn.

pebbly shore and clean rocks are a never failing invitation to sit and rest, to watch the waves break on the unyielding boulders or study the ever changing panorama of Lake Superior.



CHESTER FALLS, DULUTH PARK SYSTEM.

The park is bordered on the easterly side by a number of amusement places and a dancing pavilion, which furnish convenient shelter and add to the popularity of the park.

Within a few steps of Lester Park, connected by the Lake Shore drive, North Shore Park is a strip of beach and grassy bank between the road and the lake, comprising two acres which was dedicated to the public by the original proprietors. It is a favorite picnic ground. Drift wood furnishes fuel for beach fires, and the

Congdon Park was acquired by gift of C. A. Congdon, in 1908, and includes thirty acres on both sides of Tischer's creek. A 20-foot roadway on grades that can be compassed by an automobile, and an 8-foot bridle path, traverse the park. On the edge of the stream and in its bed is a foot path with stairs and steps and rustic bridge, and stepping stones to give easy progress through the most charming dell. The rock here is jasper red worn into perpendicular cliffs over which the trees cast their wide arches. In the upper

reaches the cataracts are bolder and the rocks more rugged. The sweep of view widens until the blue of the lake lies at one's feet and the approaches to the boulevard are gained at the entrance to the Woodland suburbs.

In the infinite variety of the Duluth park system, Chester Park has its individual features. It comprises 43 acres, through which flows Chester Creek. Here the stream has cut a deep flume between perpendicular walls; again its course is through the center of a bowl-shaped valley, and near the head its steep banks set with pines have the grandeur, though on a smaller scale, of a mountain canyon. Hardly a mile from the business center, one standing at the head of the gorge may fancy himself in some vast wilderness where no voice is heard but the rush of waters down the rocky declivity, or the wind in the pines. In its quieter nooks, the white stems of the young birches and the dark green of spruce and balsam beckon the eye from one winding to the next of the footworn path. For the treatment of walks is so skillful that it seems all nature's work. A shelter house for picnic parties is so unobtrusive that it blends into the landscape.

Lincoln Park lies on both sides of Miller's creek, in the neighborhood where a density of population may in the future lay on the park the heaviest requirements, and covers 32 acres.

The ravine is so rich in beauty that little had to be done or need be done hereafter in the way of formal treatment, except at the approaches at Third street and Twenty-third avenue west. Here the stream has been curbed by cement and an effect of breadth has been obtained by the arrangement of drives and paths. One wing of the boulevard sweeps through Lincoln Park, balancing the charms of its swerves into Chester and Lester valleys, giving fascinating glimpses of nature's recesses seen in swift passing. But the real enjoyment of the park is to be had by following on foot the paths that climb the banks or dip into the rocky bed of the stream or cross it on rustic bridges.

Central Park, formerly called Zenith, includes a mountainous peak in the center of the boulevard system, encircled by the branching roadway high above the lake, and giving a beautiful view of city and harbor. The park area is 20 acres. Back of it is the course of Miller's creek in a pastoral valley. On the foreside is the cornice of the mountain's shoulder where the road is graded in granite and rests on rocky abutments, steeply buttressed by natural columns.

Five squares were included in the original plat of London, afterwards annexed to the city, which are found today mostly in the happy state in which nature left

them. But something has been done in each to make attractive paths and place rustic seats.

Until recently, children had room to play without needing the city's help. But now the residence sections are growing so fast that the children must play in the street unless some other provisions are made. Playgrounds—some fairly well equipped and some rather sketchy—are maintained during the summer at eleven places. During the winter twelve skating rinks are kept up. Four of the parks have swimming holes.

The present equipment of playgrounds is as follows:

Lincoln Park.—Swings, sand box, parallel bars, swimming hole.

Fairmont Park.—Sand box, swings, swimming hole.

Chester Park.—Baseball diamond opposite Children's Home, swimming hole and wading pool.

Harrison.—Parallel bars, swings, teeters, skating rink. Thirty-eighth and Grand avenues.

Athletic Field.—(On private property.) Parallel bars, swings.

Nicollet avenue, between Fifty-sixth and Fifty-seventh, adjacent to Irving School.—No apparatus.

Lester Park.—Swings, sand box, parallel bars, etc.; swimming hole.

Portman.—Baseball, skating rink, etc., maintained by private contribution till last year.

Washington.—Sand box, swings, etc.

Portland.—Sand box.

Cascade.—Swings, sand box, etc.

Lake Shore.—Baseball, football, skating rink.

Henry Cleveland is secretary and superintendent of the Duluth park system.

PARKING SAN JOSE'S ALUM ROCK CANYON

San Jose, one of the most progressive cities in California, has long been in possession of a wonderful natural park reservation, known as Alum Rock Canyon. Some years ago, at the invitation of the Out-Door Art League of the city, Mr. Charles Mulford Robinson prepared one of his characteristically interesting reports, suggesting many improvements and recommending that a landscape architect be secured to make a plan for the best ultimate development of this reservation. This recommendation was particularly well received, and the progressive commissioners secured the services of Stephen Child, a well-known landscape architect of Boston and Santa Barbara, who, while especially

reservation embracing its purpose and use by the metropolitan community surrounding San Francisco Bay. The steep-sided valley or canyon of Penitencia Creek, a name recalling early Spanish days, where the padres of the near-by missions gathered "to *penitently* confess their sins to one another." The entire valley or canyon originally belonged to the "pueblo" of San Jose, but some of the upper slopes are now occupied by ranchers or farmers, for which lost area Mr. Child makes a strong plea. About six hundred acres controlled by the commission extend along the rugged slopes of the valley for nearly three miles. At the upper or easterly end are two very beautiful falls, one nearly

for many years there have been crude arrangements for baths, for which public accommodation (though entirely inadequate) a narrow-gauge street railway had been built. The suggestion, prompted by the best landscape design and the desire to preserve all the beauties of this canyon, that the street railway stop half a mile or so to the west of its present terminus, with the provision of bath houses and other facilities here, met with such opposition that it seemed necessary to allow the road to be built to near its former limits.

The presence of this rearranged railway, together with a more or less publicly used and controlled county road in the westerly



familiar with California conditions, had also the benefit of the co-operation of Mr. Robinson as special consultant. With permission to publish Mr. Child's plan for this park, we give our readers the following brief review from his report in advance of its publication.

Following a brief introduction by Mr. Robinson endorsing the landscape architect's study of the problem and emphasizing important recommendations, there is a description of existing conditions of

thirty-five feet in height. The ravages of the overflowing creek make the reconstruction of trails and roads necessary, enabling the public to reach these beauties. All this is an important part of the plan. Beautiful as the canyon is, there are many such in California, though all too few in control of the people. The group of springs of such remarkable diversity—sulphur, lithia, lime and alum—scattered along on either side of the rugged banks, give Alum Rock its distinctive character.

end of the Reservation, makes this a broadened parkway—an approach unit.

At the famous Alum Rock Cliff the street railway company met the suggestion of Mr. Child more than half way and are constructing ornamental concrete arches over the creek and roadway. These, together with the re-designed, attractive road bridge, also of concrete, make this the real portal or gateway to the park.

The street railway extends for nearly half a mile further easterly, but is so located

that it will be quite unobtrusive. After careful study, it has been decided to *group* the terminal station and the needed new buildings; the site selected is a natural amphitheater, near the center of which, and at considerably lower grade than the other buildings, is placed the station. South of this a curving retaining wall gives ample accommodation for the waiting crowds. Above the wall and station, in the center of a nearly level, tree-shaded, fan-shaped area, is placed the band-stand, from which broad paths radiate to the

Pavilion and Restaurant to the east, and the modern Natatorium to the west. These two buildings are connected by a Pergola fitting the natural curves of the hillsides, and there is thus formed here a Music Court—a place of entertainment for thousands of visitors. All formality is to be concentrated in this comparatively small area near the necessarily formal buildings. The remainder of the reservation is to be kept as absolutely natural as possible. Narrow roads, trails and paths fitting the natural contours of the ground, are pro-

vided, enabling the public in an agreeable and convenient manner to reach the Falls, the Mountain Summits, the Springs, the Picnic Grounds and other points of interest. Every effort is to be made to conserve, renew and increase the native trees and shrubs. In closing his report, Mr. Child makes recommendation for interesting parkway approaches to and from the town, and the commissioners thus have a comprehensive plan which may be executed at their discretion.

NEW PLAZA AND FOUNTAIN FOR CENTRAL PARK

One of the most interesting studies in the design and setting of monumental fountains ever held in this country was recently completed in New York City to select the design for the Pulitzer memorial fountain to be erected with a bequest of \$50,000 left by the late Joseph Pulitzer, publisher of the *New York World*. The plan embodies a complete, carefully studied and elaborate rearrangement of the entire plaza entrance to Central Park, at Fifth avenue and Fifty-ninth street.

To obtain designs for the fountain a limited competition was held between five of the leading architects of New York, who have done considerable work of that kind. To them also the Municipal Art Commission referred the designing of the new plaza. The firms chosen for the work were Carrère & Hastings, McKim, Mead & White, John Russell Pope, H. Van Buren Magonigle and Arnold W. Brunner. These firms selected as judges of the designs Charles A. Platt, a well-known landscape architect of New York; Paul Cret, a French architect of high standing, and the Municipal Art Commission added Whitney Warren and George B. Post, both architects, and Herbert Adams, a widely known sculptor.

This jury decided in favor of the designs of Carrère & Hastings, both for the fountain itself and for the improvement of the plaza.

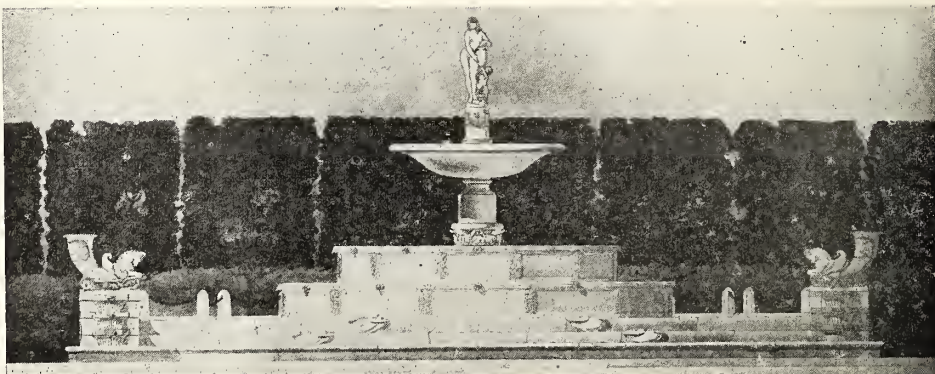
Carrère & Hastings' plan for the development of the plaza provides for a park to occupy the center of the space from Fifty-eighth to Sixtieth street and between the Plaza Hotel and Central Park on the west and east side of Fifth avenue on the east. All about this park, which, of course, will be intersected by the Fifty-ninth street surface line, will be a roadway, in its narrowest part as wide as Fifth avenue and in its wider parts to be more than double this width.

Outside of the park, and bordering on the east and west a walk that will surround it, are to be planted Oriental plane trees. Provision is made for having the park brilliantly illuminated by night. Stone

benches will border the walks at frequent intervals.

The fountain at the lower end of the south plot consists of a series of basins coming toward the center of the plaza from the south end. The fountain itself, consisting of three lower basins and five upper basins of stone and surmounted by an allegorical figure not yet determined upon, is in the Renaissance style and in keeping

with the character of the Sherman monument at the other end of the parkage. Really it will consist of a number of basins on a series of terraces with the water running toward the north. The fountain itself is a large Italian basin with a statue in the center, the upper basin sixteen feet in diameter and the head of the heroic female figure of eight or nine feet, reaching thirty feet above the pavement. The alle-



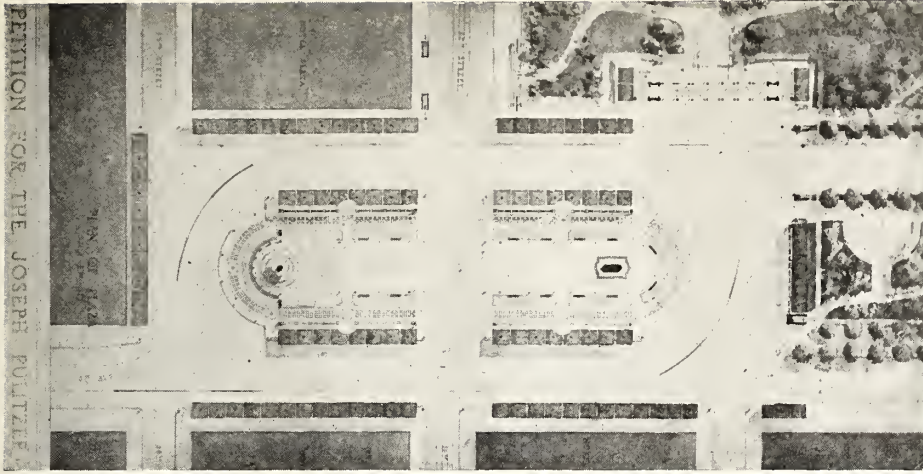
FIRST PRIZE DESIGN FOR PULITZER FOUNTAIN; CARRERE & HASTINGS, ARCH.



McKIM, MEAD & WHITE DESIGN FOR PULITZER FOUNTAIN.



ARNOLD W. BRUNNER'S DESIGN FOR PULITZER MEMORIAL FOUNTAIN.



CARRERE & HASTINGS' PLAN FOR IMPROVEMENT OF PLAZA SITE FOR PULITZER FOUNTAIN.

gorical figure surmounting the fountain will be decided upon when the sculptor is selected.

While they were on the subject, the designers of the fountain and the Plaza park their ideas of what should be done to make went right ahead and put into their plans

the whole of that section pleasing and artistic. One of the details they added was a bordering of plane trees on all four sides of the square, and in front of the three big hotels to be found there, the Vanderbilt house, the Metropolitan Club and the park. Also they proposed

a new rest on the west side of the entrance to the park to take the place of the wood and iron building now there. The new shelter will be longer and wider than the present one, and in design and material will be in keeping with the rest of the improvement. Special treatment also is suggested for the park entrance. On either side of the driveway there will be an ornament of some kind, while the centre of the roadway will be occupied by an aisle of safety. Below the new shelter in the park comfort stations are planned.

It was to be expected that any attempt to change the arrangement of the plaza would call forth protests against congestion. This the architects have realized and their plan is designed especially to prevent crowding of either vehicular or foot traffic. The width of the streets about the Central Park feature gives a space for north and south traffic not less than twice as wide as Fifth avenue, while pedestrians are likely to find the proposed arrangement less confusing than the present one.

OFFICIAL COMMUNICATIONS

JAMES B. SHEA, Boston, Mass., President



AND CONTRIBUTIONS

J. J. LEVISON, Brooklyn, N.Y., Sec.-Treas.

Park Utilization Bulletin.

The attention of members is called to the fact that we are about to publish a bulletin on park utilization. It will contain the replies from the various members who answered our circular letter on this subject under date of December 1. I would now like to urge those members who did not reply and who would care to have their answers included in this bulletin to send in their letters at their earliest possible convenience.

J. J. LEVISON,
Secretary.

Controlling Hickory Bark Borer.

On February 24, 1913, a conference was held at the office of the Commissioner of Agriculture at Albany, N. Y., to consider the methods to control the hickory bark borer, which is now ravaging the hickory trees in the vicinity of New York on a large scale. Mr. Hermann Merkel, forester of the New York Zoological Park, was the prime mover of this conference, and he pleaded especially for the trees in his locality. J. J. Levison, forester of Prospect Park, was also present there and showed that while in Prospect Park up to a year ago they were losing at the rate of three hundred hickory trees annually from the ravages of the hickory bark beetle, he has succeeded in entirely eliminating the insect from the parks of Brooklyn, and last year they did not lose

a single hickory tree, although they still have several hundred good hickory trees left standing in the parks which are not infested. They came to the conclusion that the only solution for the problem is the absolute removal and destruction of the

infested trees before early spring. The conference is already producing fruit and several state inspectors are now working in the vicinity of the Zoological Park in New York, marking the infested hickory trees in that region.

THE ASSOCIATION QUESTION BOX

Sun Scald on Trees.

We experience very considerable trouble and loss from sun scald on newly planted smooth barked trees, the worst sufferers being *Tilia Americana*, *Sorbus Americana* and *Pyrus baccata*. Our method of protection is to wrap with coarse canvas or burlap. Is there any quicker or more effective method, such as painting or daubing, and if so, what preparation is used?

G. CHAMPION,

Supt. Public Parks Board.

Winnipeg, Can.

[Can any of the members suggest other methods of protection?]

Washing of Park Walks.

Some members of the association could probably suggest a way out of a difficulty confronting us in the washing of walks in our parks. We finished our walks with screenings from an abandoned brick plant, the red color of which among the green lawn gave a very pleasing effect

and was easy to walk on. But on the grades it washes out after each heavy rain. Cement walks have been proposed, but they meet, and rightly, with opposition. Might some clean oil mixture help the matter?

C. GUENGERICH,

Prest. Board of Park Directors.

Joplin, Mo.

[Members who have had any experience with the washing of walks are requested to offer some suggestions to Mr. Guengerich through this department.]

Filling Cavities in Trees.

I should like to get some data covering considerable observation regarding the filling of cavities in trees with cement or concrete, and thought that perhaps it might be a profitable matter for discussion in the A. A. P. S. Department of PARK AND CEMETERY. That is, I want to find out whether the operation can be successfully done or is inherently wrong, and I suppose others would like to know the

same. I know you do not believe in it very much, and I have my doubts about it, although I am doing a little of it just now.

Of course, all of us can point out innumerable cases of filling trees with concrete which have turned out badly, but those are usually cases where the job has been done with obvious and glaring inefficiency. As you know, of late years a crop of "tree doctors" has sprung up in the land, and some of them are doing work which at least looks as though it might turn out all right. I mean the cavities are well cleaned out, treated with antiseptics, re-enforced with iron rods, bolts, nails, wire, etc., the concrete is accurately adjusted to the cambium line (neglect of this seems to be the most obvious fault of the old-time jobs), drainage channels are cut in the wood, and much other ingenuity of various kinds is exercised in doing the work. Now, disregarding the old-time jobs, which are hardly worth discussing, have you or anyone else observed fillings made as long ago as, say, ten years, but in accordance with what we may term modern approved methods? If so, what have you discovered? The new growth may be rolling nicely over the filling, but how about the inside of the cavity? The mere fact that new growth over the filling is taking place is no proof that decay is not going on inside of the tree as fast as ever, and the external evidence of good health and security may be only a sham. I have recently dug out one not very large filling in an English elm, over which the new growth had been growing nicely for some years, and found a surprising amount of active decay going on inside. How well the cavity had been cleaned out in the first place I could not say.

The feeling that I have about this whole matter is that it is easy enough for the "tree doctors" to talk glibly, and to say that this and that should be avoided and that this and that should be done, and all will be well. But is it possible to keep out the moisture from a filled cavity? Is it possible to prevent decay by this method? To get back to the question put in the first part of my letter—can the operation be done successfully or is it inherently wrong?

I should be glad to get many answers to my questions. HANS J. KOEHLER.

Soil Improvement Office,
Boston Common, Boston, Mass.

* * *

In an article entitled "What We Really Know About Tree Surgery," in *Country Life in America* for December, 1910, Secretary Levison says on this subject:

"Cavity filling is necessitated by improper tree pruning and neglect in dressing wounds. Where the trees have been properly cared for from their early start, cavity filling has no place at all. In old neglected trees, cavity filling is justifiable only where it can serve the practical purpose of elimin-

ating moisture and where every trace of diseased wood can be thoroughly removed before the filling is inserted. To insure a perfect filling the operator or consulting forester must be able to tell whether the disease has permeated the whole tree or is still in its first stages. He must know whether the disease prefers dead wood, or live wood, or both; whether it is apt to attack the neighboring trees of another species, and whether it is preferable to sacrifice the whole limb or tree instead of filling it. He must be able to recognize the presence of the fungus fibres (mycelia) in order to know when to stop cutting into the cavity, and he must know how to destroy the various insect enemies found within the cavity. He must know whether the wood is naturally strong and pliable or soft and brash in order to determine the extent to which he can chisel into the cavity with safety. He must judge whether an ordinary filling will hold or whether there is a call for special re-enforcements and mechanical devices such as tin plates over the cement to hold the filling in a swaying young tree, or iron bars to hold the filling between two split limbs. Finally, a knowledge of the nature of the species and general condition of the tree in question will be serviceable in deciding the future possibility of the tree after treatment. These foregoing observations are all necessary before the actual filling-process is commenced, and in addition to them I want strongly to emphasize the fact that, similar to the cancerous growth of a human being, there are thousands of minute fibres radiating through the wood of the tree from the centre of disease, and unless every bit of this infested wood is eliminated the work will fail. Moreover, the filling must serve the practical purpose of preventing moisture from collecting in one place, and, in case of diseased hollow trunks, perpendicular shallow wounds, and similar instances, the attainment of these conditions is frequently impossible. When this is the case, the chisel, gouge, and coal-tar, without the filling, are the better and cheaper mediums of prolonging the life of the tree, and in many instances the axe is the only alternative.

Where, however, a filling can be put in with advantage, the process should consist in removing all diseased wood from it with the free use of the knife, chisel, or gouge. It is far better to enlarge

the cavity by cutting out every bit of diseased wood than it is to leave a smaller hole in an unhealthy state, for every trace of disease left within the cavity will continue its destructive work behind the filling and later on destroy the tree just the same as if there had been no filling at all. Where there are boring insects within the cavity, their destruction must be assured before filling is commenced. It frequently happens with large cavities and hollow trunks that the boring insects cannot be reached individually by hand, and in such cases an original method of fumigating the cavity has been resorted to by the writer, which consists in closing all orifices leading to the cavity with tar paper and then filling it with vapor of hydrocyanic acid gas or with that of carbon bisulphide. Either of these gases will kill all animal life and will penetrate the extreme burrows which the operator's syringe or knife could never reach or which might have otherwise escaped his eye. When the cavity is absolutely freed from disease and insects its walls should be washed with corrosive sublimate and covered with white lead or with Bordeaux mixture. The interior should then be studied with nails and solidly filled with bricks, stones, and cement, or with charcoal, bricks, and cement. When that is done, the outer edge of the cavity is interlaced with wire to assist in holding the solid material in place, and a layer of cement, mixed one-third sand, is then placed over the wire. When dry, this layer should be covered with coal-tar. The exposed face of the filling must not be brought out to the same plane with the outer bark of the tree, but should rather recede a little beyond the growing tissue which is situated immediately below the outer bark. By this method, the growing tissue will be enabled to extend over the cement and cover the whole cavity, if it be a small one, or else to grow out sufficiently to overlap the filling and hold it as a frame holds a picture. The growth of this living tissue can be much accelerated by cutting around the border of the orifice immediately before the season of growth commences. Of the many failures in filling cavities, the great majority are due to an incomplete removal of diseased woods, to the cement being flushed out to the surface of the outer bark, or to the want of tar on the outer surface of the filling."

SPRAYING DEVELOPMENTS IN MASSACHUSETTS

Solid Stream versus Mist. A Brief Statement of the Writer's Experience and Observation During the Last Six Years.

By R. W. CURTIS,

Arnold Arboretum, Jamaica Plain, Mass.

Spraying operations in Massachusetts fall naturally into two groups, namely, orchard spraying and woodland spraying. Orchard spraying has received a tremendous impetus throughout the country during the last ten years. This has been due to the great and increasing interest which is being taken in orchard planting and in country-life affairs generally. We are on the rise of an agricultural tide in this country! There never was such activity in all lines of agricultural practice and research as at the present time. Particularly is this true of the whole field of plant protection, including both insect pests and plant diseases. There is the keenest kind of interest manifested in these lines of inquiry, not only by our governmental departments and our agricultural colleges and experiment stations, but also by horticultural and agricultural clubs and societies and by public-spirited individuals, and most recently by practical business firms whose interests are directly or indirectly affected by improved methods of prevention and control.

In Massachusetts orchard spraying has had the additional incentive of the wonderful results which have attended recent

development in woodland spraying in this part of the country. At this writing I will first explain this rapid development of woodland spraying, then describe a typical spraying outfit suitable for orchard and light woodland spraying, and conclude with some specific directions for the more common park and orchard insect troubles.

Spraying in Massachusetts is performed by three general types of machines. There are low power, semi-high power and high power.

The low-power machine is operated by hand or power up to two and one-half horsepower. It produces a mist spray and is the most common orchard type machine today. The mist is produced at close range, *i. e.*, four or five feet from the nozzle, by using a very small hole with a disc or other device for spreading the spray. Such a mist requires a pressure of 150 pounds and consumes the least amount of solution of any known spray. This type of spray was in common use fifteen years ago for both orchard and woodland work. Spraying in woodlands with such a machine involved much climbing and ladder work and was both very slow and very expensive.

The semi-high power sprayer includes all machines of four to seven horsepower. Such machines may be used for mist work, but are generally spoken of as "solid stream sprayers." The solid stream is produced by using a straight open bore nozzle with one-eighth or one-quarter inch tip under 200 pounds pressure. Such machines will throw a forty to fifty foot stream and in high tree work will necessitate the use of forty-foot and sometimes sixty-foot ladders.

This was the type of machines used by the late J. A. Pettigrew when I came to the Boston parks in 1906. It is interesting to note here that the first solid stream spray used in America was devised by Superintendent Pettigrew in 1895 while at Prospect Park, Brooklyn, N. Y. This is described by Dr. L. O. Howard in the Year Book of the Department of Agriculture for 1896. It was a home-made affair, consisting of a portable steam boiler and pump connected up to a watering cart. For a nozzle an ordinary fire nozzle was used with a small bore. The machine was invented to fight the Tussock moth and the elm leaf beetle. It did the work well and much quicker and better than any other method then in use.

The high-power sprayer must have an engine of at least ten to fifteen horsepower. This is the latest and highest type of spray machine manufactured today. This will pump seventy-two gallons per minute at 300 pounds pressure and will throw a 100-foot stream with a one-quarter inch straight open bore nozzle. The essential differences between the high and semi-high power machines are the greater height of the stream and the finer character of the spray after it reaches the proper height. In the semi-high power machine the spray is a coarse, drenching spray. In the high-power machine the solution is driven with such force that the spray is broken into a fine mist after attaining the proper height. With such a machine the highest tree in Massachusetts can be properly sprayed without a ladder of any kind.

In 1908 I kept records of the work of the different Boston park sprayers which at that time were all semi-high power machines. These records included five items, which averaged as follows:

Daily interest (5%) and depreciation of machinery (12%).....	\$ 3.79
Labor, six men (one foreman, one engineer, four laborers).....	15.00
Team	6.00
Poison, three (600 gals.) loads, or 216 pounds, at 10c.....	21.60
Gasoline, three gals. at 13½c.....	.40
	<hr/>
	\$46.79.

These showed an average cost per day of \$46.79 for one semi-high power sprayer.

These are the figures on which the department based its charge of \$48 a day or \$6 an hour for the use of one of these sprayers whenever it was detailed on private work. That season two of these machines spent two days working over a section of Commonwealth avenue and sprayed the trees at an average cost of 52 cents per tree. These were medium size trees and not more than one-half of them required the use of a ladder.

At another place twenty very high English elms were sprayed at a cost of \$2 per tree. Sixty-foot ladders were necessary, and as the spray was for elm beetle, the work had to be very carefully done. The top of the tree was sprayed from the top of the ladder and the outer branches from a point lower down on the ladder. At all times the work was done slowly and thoroughly, the stream being always directed against the underside of the leaves, in order to properly place the poison for the feeding larvæ. Such costs as these are altogether too excessive and are due entirely to the limitations of this type of machine for this kind of work.

In support of this statement I have records of the high-power machine spraying 900 trees (25-90 feet) at a cost of 10 cents per tree, and again 17,000 trees (25-90 feet) at a cost of 16 cents per tree. A conservative figure would be 20 cents per tree for the highest of trees, providing they are near enough together to cover the cost of moving the machine from place to place. A further compression might be made in the amount of material sprayed out per day by the two types of machines. The high power will average 3,600 gallons per day, while the semi-high power is averaging 1,800 gallons. In steady woodland work, where the high-power sprayer does not leave its position for filling, but is supplied by a filling machine, *i. e.*, a separate line of hose and pump stationed at some near-by pond or other water supply, the high-power outfit has averaged 7,200 gallons per day.

There is probably no one individual in the country who has taken more interest in the development of woodland spraying than Col. William D. Sohier, chairman of the Massachusetts Highway Commission. He has kept spraying records for years. He states that the cost of spraying, including labor and materials, without depreciation of machinery, has averaged for low power or mist machines \$38 per acre; for semi-high power (poorer type), \$16 per acre, and for semi-high power (better type), \$10.08 per acre. In 1911, in his report for the Summer Residents Committees on the Gypsy Moth Work on the North Shore, he reports on an outfit of six high-power horse sprayers with a cost of \$6.51½ per acre. In 1912 his outfit was increased to fourteen high-power horse

sprayers, three filling machines and one high-power auto sprayer. This year the cost was \$4.59 per acre.

In explanation of this last figure it should be noted that the increased economy has been secured more by a proper adjustment of the different types of machines for the work to be done than by any great improvement in the machines themselves. The three filling machines greatly facilitated spraying the larger woodlands, but the most marked improvement was noticed in the adaptability of the auto sprayer to the large mileage of roadside reservation characteristic of this North Shore district. The auto sprayed both sides of the roadway at once and covered an immense amount of territory.

In speaking of this high-power type of sprayer Col. Sohier says: "We found that our new spraying machines were doing much more efficient and economical work than the older ones. They actually threw over the top of the trees and made a finer spray and were more economical because, with their additional power, nearly double the territory could be covered in one day with the same labor cost."

So much for the new high-power type of sprayer. While this is the ideal which has developed in a section of the country requiring an immense amount of high woodland spraying because of the ever-present gypsy moth, yet for the farmer with an orchard and a small wood lot a smaller powered machine is all that is needed. The bulk of the spraying is mist work in the orchard. But the elms will have to be sprayed for the elm leaf beetle, and if the farm is in Massachusetts the owner must be prepared to protect his other shade trees or even to spray his whole wood lot. Under such conditions a proper equipment is half the battle, and a light, semi-high power machine of five to six horsepower will do the business.

We have such a machine at the Arnold Arboretum. It is a strictly home product and was evolved on the place. Four years ago we began with one fifty-gallon spray barrel. We have had to go slow in developing our equipment, but having a definite purpose in mind, each step has been taken in the right direction, and at last our present semi-high power outfit has been realized. Before making the last move we secured expert advice and then went ahead and put the thing together ourselves in the wintertime, when the stormy weather forced the men inside. The spraying work would be done much quicker and more efficiently if we had a high-power machine to co-operate with the one we now operate. But as it stands, our little sprayer has many points to recommend it and has given excellent service day in and day out. I will describe it briefly next month.

(To be continued next month.)

PARK NEWS.

The comparative statement shown herewith has been prepared by the Board of Park Commissioners of Minneapolis, Minn., to place before the state legislature in their endeavor to get permission to make a new issue of bonds to the value of \$500,000. An issue of \$250,000, previously allowed by the legislature, is now under consideration by the Common Council of Minneapolis. With such a comprehensive

age is 930 and but little less than that of Buffalo; Milwaukee's population of 373,857 also is only 17,000 less than that city; and the secretary of the Milwaukee Park Commission finds that the expenditure of but \$188,000 a year on park maintenance and improvements is \$422,000 less in Milwaukee than in Buffalo.

Plans prepared by Robert C. Gotwald, architect, have been adopted by the Park

At a recent meeting of the Galesburg, Ill., Improvement Society, at which Dr. J. V. N. Standish and prominent men spoke, a movement was started to have all the trees of the city placed under the care of the Park Commission. It was also decided to wage a campaign for cleaner streets, the proper observance of city sanitary ordinances, and to prepare plans for a more thorough cleaning-up period.

The Chicago West Park commissioners have received with approval a plan to build an amphitheater in one of the West Side parks with a capacity to seat 20,000 people. The commissioners voted to refer the matter to the Committee on Finance and Maintenance for action and recom-

CITY	AREA Sq. Miles	POPULATION	PARK AREA Acres	DRIVES Miles	VALUE of LANDS	VALUE of IMPROVEMENTS
BOSTON	47.3	717,920	3,493	44	\$8,590,348	\$10,719,708
MINNEAPOLIS	54	319,000	3,710	34	4,813,055	1,712,043
KANSAS CITY	59.6	248,370	2,357	53	7,150,000	3,830,000
CLEVELAND	49.5	605,000	1,954	39	3,330,000 Approx.	3,681,094
DETROIT	44.3	567,944	1,244	28	1,214,880	3,993,781
CINCINNATI	70	383,700	1,652	18	4,421,592	455,737
SEATTLE	59	280,485	1,581	25	2,781,640	1,716,933
ST. PAUL	54.5	222,736	1,492	16½	672,975	863,126
DENVER	58.75	213,381	1,318	50	-----	-----
SAN FRANCISCO	46.6	450,000	1,850	28	-----	-----
TACOMA	36	100,000	1,091	10	-----	-----
PORTLAND, ORE.	52	255,000	653	4	-----	-----

Board of Park Commissioners, Minneapolis, Minn.

SOME COMPARATIVE PARK STATISTICS FIGURED OUT BY MINNEAPOLIS PARK BOARD.

statement before the law makers it should not be difficult to satisfy them that Minneapolis is not keeping pace with the other cities in the matter of expenditures for park improvements. We are indebted to Supt. Wirth for the sketch.

Improvements and Additions.

Some \$5,000 will be available this year for park purposes in Owen Sound, Ontario. The Park Commission has let a contract for an \$800 bungalow in Harrison Park, a tract of seventy acres.

The contract for the new animal house for Miller Park, Bloomington, Ill., has been awarded to the local firm, Fred Garling & Son, the lowest bidder, at \$21,970. Other bids were: John W. Evans Sons Co., \$30,387; J. L. Simmons Co., Chicago, \$34,471; Bloomington Construction Co., \$29,550. The contract calls for the entire building complete, except the heating plant and connections. It will be a substantial structure.

Residents of West California street, Urbana, Ill., have arranged with landscape gardeners from the University of Illinois to beautify their parkings, the property owners to bear the expense. The council gave permission for the improvement.

Milwaukee, Wis., is being criticised for its parsimony in providing funds for its park maintenance. Milwaukee's park acre-

age is 930 and but little less than that of Buffalo; Milwaukee's population of 373,857 also is only 17,000 less than that city; and the secretary of the Milwaukee Park Commission finds that the expenditure of but \$188,000 a year on park maintenance and improvements is \$422,000 less in Milwaukee than in Buffalo.

Plans prepared by Robert C. Gotwald, architect, have been adopted by the Park Board for a bandstand in the public park at Springfield, O.

The unsightly bluff that has long marred the appearance of St. Margaret's Hospital, on the Kansas side of Kansas City, is to give place to a terraced park. The visitor will reach the building by an easy ascent of nine short flights of steps and an inclined walk, to reach which he will pass through a park of seven and one-tenth acres. The land condemned cost \$89,575 and the improvement will have cost \$35,000.

The improvement of Northwestern Park, Rockford, Ill., is to be immediately undertaken by the Park Commission.

Ornamental public drinking fountains have been ordered for use in the city parks of Waycross, Ga.

Woolridge Park, Austin, Tex., is to be greatly improved this season.

Eads Park, Paris, Ill., is to be the picnic grounds of that community. In addition to the eighty acres of trees, a complete lighting system and running water, piped and pumped from the great springs near by, work has begun for a dam across Sugar Creek, so that there will be a lake for boating, fishing and bathing. With the traction company's covered train sheds for the protection of passengers, and good transportation, Eads Park must become a popular resort.

mentation. Built complete it will cost some \$120,000.

Plans for the resumption of work at Taylor Park, Freeport, Ill., have been made by the Board of Park Commissioners. Mr. John Klehm, of Moline, is in charge of the work. Bids have been asked on the work of completing the artificial lakes at the park, for the laying of sidewalks on the outer edge of the park, on Taylor avenue, and for the laying of a cinder drive within the park. The baseball park will also be improved. Work at the park will be resumed as soon as the weather will permit and when once started it will be rushed to completion.

New Parks.

Central Falls, R. I., is to have a public playground for the children. This is made possible by the gift last year of a strip of land by Samuel M. Conant.

The people of Woodhaven, Brooklyn, N. Y., are now assured of a playground for children in Forest Park. Park Commissioner Walter G. Eliot hopes to have it opened by next September.

Mr. and Mrs. J. Roman Way made a munificent gift to Williamsport, Pa., last month, by presenting two adjoining properties containing two and a half acres, and worth \$40,000, for a public park to be known as Way Garden.

As the result of a recent conference between the members of the Brandon, Manitoba, Parks Board and J. H. Gris-dale, director of the experimental farms of Canada, it is likely that the long mooted plan to have a portion of the experimental farm and of the industrial school to be used as a pleasure park for Brandon will soon be realized.

Steps have been taken for the establishment of two additional playgrounds in Lynn, Mass., one in extreme East Lynn and the other in extreme West Lynn.

The first public playground located on private property and thoroughly equipped by private capital was opened a few weeks ago in San Francisco. This new recreation center is situated on the west side of Valencia street, between Thirteenth and Fourteenth, and will be known as the "Koverall's Playground." The lot is 160 feet long and 80 feet wide.

Wahpeton, N. D., is to have a new small park, occupying a block west of the High School. A landscape gardener has the contract to improve it.

Danvers, Ill., is the recipient of land for a small park, the gift of Mr. and Mrs. L. R. Stephenson. It is a much needed addition to the town.

The committee on appraisal has reported a price of \$32,666 for a piece of property to be added to Seneca Park, Rochester, N. Y. It fronts on St. Paul street and has a frontage of 565 feet by a depth of 150 feet.

Davenport, Ia., is putting some \$300,000 into levee improvements, under a special act of legislature, and expects that eventually the improvements will pay for themselves and yield a large revenue to the city. After the work is completed some think that Davenport will have the handsomest and most up-to-date river front on the whole stretch of the Mississippi river front from St. Anthony's Falls to the Gulf of Mexico.

From Park Reports.

In the Pueblo, Colo., city controllers' annual statement for the year ending December 31, 1912, Mr. G. Hennenhofer, superintendent of parks, makes his first annual report under the new charter. The parks suffered more or less from unusual weather conditions the first part of the year, and a climax came when on July 1 a heavy hail storm on the north side of the river damaged all plants and destroyed some 75 per cent of the greenhouse glass. The floral display was ruined and never came up to the standard during the rest of the year. The total appropriation allowed for the maintenance of all parks was \$25,000 and the expenditures were \$23,117.54. The work done during the year was largely that of maintenance and improvements in planting and bringing the parks up in condition.

The fourteenth annual report of the park commissioners of the town of Hopedale, Mass., for 1912 contains a few interesting illustrations of wild park scenery. Its small system offers some lovely views and has upwards of six miles of roads and paths. An interesting note in the report is that "food and shelter are furnished for the birds inhabiting our territory." The commissioners say that no section under their jurisdiction affords greater pleasure or enjoyment than the playground.

The Board of Park Commissioners of Wilmington, Del., have issued a very attractively illustrated report for the year 1912. The commission has five main parks of a combined area of 405.62 acres, and eighteen small parks and open spaces of a total area of practically 52 acres, under its control. Like many another city, the Park Board has been hampered by inadequate funds, with the result that no great work could be completed nor the work of maintenance conducted as it should have been. Five playgrounds under careful supervision were maintained for two months, in addition to such other work not being actually under the care of the Park Board, and in this playground experience it was clearly demonstrated that each playground should be in charge of a man and woman of equal training and experience.

The report of the Park Board of Utica, N. Y., an illustrated pamphlet, gives its affairs for the year 1912 in considerable detail. Much construction work was carried out, more park facilities provided and practical attention devoted to the development of the system. The board recommends a bond issue for further necessary work in construction and improvement. The total receipts were \$119,052.85 and expenditures \$44,913.39. These playgrounds were maintained for nine weeks, with a director for each. To popularize the parks many special events were arranged which served to impress upon the people the value and beauty of their park system.

MORE OR LESS PERSONAL

The Boston Society of Landscape Architects was organized in Boston last month, and it will become a chapter of the American Society of Landscape Architects. The society has arranged for an associate membership of persons distinguished in the architectural or closely allied professions. The officers are: Warren H. Manning, president; James Sturgis Pray, vice-president, and Arthur A. Shurtleff, secretary-treasurer.

Mrs. A. E. McCrea, landscape gardener, recently spoke before the Springfield, Ill., High School on the leading principles of beauty in landscape architecture, etc.

On the occasion of his recent visit to Champaign and Urbana, to work for a week or more with the students in the landscape gardening and horticulture departments of the University of Illinois, a farewell dinner was given to Prof. Charles Mulford Robinson, of Rochester, N. Y., by Prof. J. C. Blair, of the university. At this dinner plans of improvement for the two cities were outlined to about fifty residents, including both park commissioners, and some drastic suggestions attracted pointed interest.

At the annual meeting of the Boulevard and Park Association of Quincy, Ill., all the old officers were re-elected. At the head is Mrs. E. J. Parker, widow of the late Edward J. Parker, whose name so often appeared in these columns in connection with park and landscape improvement, and who was justly termed the father of the Quincy park and boulevard system. Mrs. Parker made a comprehensive and valuable report, which was later voted to be made part of the permanent records of the association. A vote of thanks was also accorded to her "for the able, efficient and faithful manner in which she had discharged the duties of the office during the past year." Quincy, Ill., continues to set a great example in park matters.

Mr. Edward J. Canning, for nineteen years past superintendent of grounds and head of the Botanic Garden of Smith College, Northampton, Mass., has resigned that position in order to devote his whole time to landscape gardening. During the past few years Mr. Canning has drawn plans for and planted a great number of public and private grounds, and the increasing volume of work has rendered it necessary to give up his college duties. He is at present engaged in laying out a public park in Easthampton and some twelve or fifteen private grounds in Northampton and adjacent cities and towns. He will continue to reside in Northampton. His office address will be 361 Prospect street.

Mr. Myron H. West, president of the American Park Builders of Chicago, has been commissioned to prepare a comprehensive city plan for San Antonio, Tex. At a luncheon last month in that city Mr. West presented a preliminary report he was engaged to prepare several weeks ago.

Mr. Addison Bain, well known in connection with his work as superintendent of the Marion, O., parks two or three years ago, has again been appointed superintendent, to serve without pay, until there may be funds for the purpose appropriated. Mr. Bain has always been interested in the parks and was particularly popular with the children, their care and amusement.

FALL vs. SPRING PLANTING

By E. M. Swiggett, Superintendent of Parks, Utica, New York.

Many believe that spring is the only time to plant trees and shrubs, but opinion seems to be pretty well divided as to whether fall or spring is the better time.

Some or the arguments in favor of fall planting follow, but they will have greater weight with persons who intend to plant large estates or who have charge of municipal planting than with those who intend to plant only a few trees or bushes.

The nature of plants is the most important thing to consider. Of course, there are some trees and shrubs which should be planted only in the spring because they might prove not perfectly hardy unless fortified in their new surroundings by a season's growth before winter set in. The *Tamarix africana*, a very beautiful shrub, is one of this type. But such plants are the exception.

In the fall of the year trees and shrubs are, even in the warmer latitudes of the United States, approaching a dormant condition which moving hastens, as a rule, without seriously damaging the plant. The roots have a long season of rest ahead of them in which to take hold of the soil particles without having, at the same time, to provide plant food for leaves. In the spring conditions are reversed. The plant begins early in the season—and probably no two seasons at the same date—to send up sap. Since each season is different, especially at the North, and nurserymen cannot always ship stock on short notice as desired, spring planting seasons are very undependable.

Sometimes for above reasons nursery stock has started to bud out before it is dug for shipping, the young leaves have withered by the time it is replanted, and the stock—if it does live—is delayed several weeks.

In Utica, last spring was excessively cold, wet and late in coming and followed by an eight weeks' drought. This is not an unusual condition in this latitude either. The spring of 1911 was, on the other hand, very early and very dry, which caused the plants just as much of a setback as did the spring of 1912, where reverse conditions prevailed, so climate must be considered as an argument against spring planting.

Climate varies in the same latitude very often at widely separated points, and, for this reason, many plants which would pull through a severe winter in a given latitude east might not do so in the same latitude west. All this means that when planting trees or shrubs for effect it is advisable to plant them in the fall, if there is any doubt about their hardiness, because if they die they may be replaced with other varieties in the spring.

In conclusion, it may be said that after eight years of planting experience the writer has found that if spring planted stock does live, it will probably leaf out earlier the first year than stock planted the fall before, yet the latter makes the most substantial growth by the following fall, which is the main thing to consider.

CITY PLANNING CONFERENCE

The fifth National Conference on City Planning, to be held at the Hotel La Salle, Chicago, May 5, 6 and 7, promises to be the most important yet held, and the program, which may be had from the secretary, Flavel Shurtleff, 19 Congress street, Boston, gives details of a most interesting series of discussions. Following are the chief matters included in the formal discussions provided for in the program:

A City Planning Program: Frederick Law Olmsted, Fellow American Society of Landscape Architects, Brookline, Mass.

This subject to be considered under three distinct heads:

1. The development of a city planning movement, including a discussion of the organization of unofficial activities and of official bodies to be charged with the duties of city planning.

2. The principal steps in the preparation of a city plan after the machinery for its preparation is established.

3. Methods of putting a city plan into execution.

The members of the Executive Committee will cooperate with the author in the preparation of this paper.

The Progress of the Year in City Planning: A somewhat statistical report to be prepared by the Secretary.

Tuesday, May 6—Second Conference Session, at 10 a. m.:

A City Planning Survey: Virgil G. Bogue, of Vancouver, B.C., author of the "Seattle City Plan." A general paper outlining all the data necessary as a basis for a city plan, covering among other things the city's physical condition, its legal and financial condition, and the condition, movements, and tendencies of population, industries, and the means of transportation.

A Survey of the Legal Status of a Specific City in Relation to City Planning: Edward M. Bassett, Esq., of New York City. A specific paper amplifying this phase of the general survey to show what sort of facts in respect to law and legal precedents, as found in constitutions, charters, general laws, and judicial decisions, most vitally affect the practical steps to be taken in city planning.

Third Conference Session, at 2:30 p. m.:

Gaining Public Support for a City Planning Movement: Charles H. Wacker, Chairman Chicago City Plan Commission. This paper is to deal primarily with the methods employed in a specific campaign of education.

Organization and Functions of a City Planning Commission: Hon. William A. Magee, Mayor of Pittsburgh, Pa. This paper is to consider the powers of a commission and its relation to other administrative departments.

Tuesday, May 6—Fourth Conference Session, at 8 p. m.:

Planning Improved Means for the Circulation of Passengers and Freight: Milo R. Maltbie, of the

Public Service Commission, New York City. This paper will deal with the methods and principles to be observed in planning general improvements in the means for moving passengers and freight by rail, by water, and by general street traffic within a given urban community, considered as related parts of a single system of circulation.

Wednesday, May 7—Fifth Conference Session, at 10 a. m.:

The Actual Distribution of the Cost of Kansas City Parks and Boulevards: George E. Kessler, Fellow American Society of Landscape Architects, St. Louis, Mo.

German Methods of Paying for Improvements out of Excess Land Purchases: Dr. Werner Hegemann, Berlin.

Sixth Conference Session, at 2:30 p. m.:

Some Aspects of the Chicago City Plan: E. H. Bennett, joint author of the "Burnham City Plan" for Chicago.

Business Session, at 4 p. m.: The Committee appointed at the Boston Conference to conduct a "Study in City Planning," will report during the Conference sessions, and several studies will be exhibited and discussed.

LEGISLATION FOR NIAGARA.

Legislation safeguarding Niagara Falls and preserving their beauty by forbidding the abstraction of more water for power purposes will be added to the tariff and currency program of the extra session, if the plans of the American Civic Association, now under consideration, are successful. The bill about which the main struggle will center is the Burton resolution, defeated in the closing hours of the Sixty-second Congress by a filibuster conducted by Senator O'Gorman, of New York. Senator Burton announces that he will reintroduce his resolution, which provides for the limitation of the amount of water to be taken from the falls to 15,600 cubic feet per second.

The attitude of the Wilson administration on the Niagara question is awaited with great interest. The President has not committed himself publicly either for or against the Burton resolution, but it is known that Secretary of War Garrison is favorably inclined to federal control.

Niagara is a navigable stream, and an integral part of the waterways system of the Great Lakes. Army engineers have reported that the taking of water from the river above the falls has affected the water levels in Lake Erie. Furthermore, Niagara is a boundary stream, and hence comes under the jurisdiction of the federal government.

The American Civic Association will not be satisfied with merely limiting the amount of water to be taken from Niagara on the American side. It is convinced also that the importation of additional power created on the Canadian side should be prohibited on the ground that it will make no difference in the final effect upon the cataract whether the water abstracted comes from one side of the basin or the other. The association believes that the actual sentiment of the American people will be strong enough to preserve the chief scenic wonder of America, and every reader of these pages should let his congressman and senators know how he stands.



FOREST HILLS, A BOSTON SUBURBAN CEMETERY

One of the most interesting of the historic cemeteries in the vicinity of Boston is Forest Hills, located at Jamaica Plain, with a city office at 14 Beacon street.

The charges for work on single graves are payable in advance.

STONE AND MONUMENTAL WORK.

Designs for all monuments, headstones, or other structures to be placed in the cemetery, must be

days before wanted. No foundations will be built between November 20 and April 1.

No material shall be delivered or set at any time when the ground is soft and not in proper condition.

The granting of permits rests solely with the Superintendent and his decision shall be final.

All loaded teams must enter and depart through the Canterbury Street Gate, and no material shall be unloaded or set until a permit has been received from the Superintendent's office. Upon granting a permit the Superintendent shall at his discretion appoint a supervisor, whose services will be charged for at the rate of thirty cents an hour, until such time as the monument shall be set and all apparatus or other material used in connection therewith shall be removed from the grounds.

No material for the building or setting of monuments, tablets, or other work will be received or allowed after four o'clock in the afternoon nor on Saturdays, except by permission of the Superintendent. Any one sending material must send responsible men to attend to the unloading. Horses shall not be allowed to stand unattended, nor shall they be fed in the Cemetery except at places indicated by the Superintendent.

All workmen employed in the construction of vaults, erection of monuments, etc., shall be subject to the control and direction of the Superintendent; and any workman failing to conform to this regulation will not afterwards be permitted to work in the grounds. In order to protect lots and paths over which heavy materials are to be moved, masons and stone cutters are required to lay planks.



Main Entrance, Office & Chapel

FOREST HILLS CEMETERY, BOSTON.

Forest Hills Cemetery, of 256 acres, was consecrated in 1848, and is now one of the most beautiful cemeteries in the United States. It is conveniently located in that part of Boston called Forest Hills or Jamaica Plain.

It is about six miles north of the State House and lies in a region noted for its beauty, Franklin Park and the Arnold Arboretum being near neighbors. It is easily accessible by steam and elevated trains or by park roads from the heart of the city.

Forest Hills Cemetery is managed by a Board of Trustees who receive no compensation and are elected by the proprietors, each lot owner being a proprietor. It is well kept, with most attractive landscape features and excellent care and management in every department.

The accompanying map shows the location of Forest Hills Cemetery and will be found convenient to all visitors, whether coming by carriage, automobile, train or elevated.

The following extracts from the rules governing Forest Hills, and the illustrations shown, are from a booklet of information recently issued:

No enclosures or posts will be allowed in any of the single grave sections. Raised mounds are not permitted. The planting of shrubs, vines, myrtle or flowers upon graves should be done by the cemetery, about which information will be furnished at the superintendent's office.

submitted to the superintendent for approval by the board of trustees.

No monument should be erected upon a lot the bottom base of which covers more than ten per cent of the superficial area of said lot. This should be computed as a rectangle, and furthermore if the lot is rectangular no side of a monument shall exceed forty per cent of the length of the lot line it parallels, unless it is proposed to erect one wide monument at the rear of the lot. This rule shall be strictly enforced in Section 10.

Headstones in lots which already contain a monument are undesirable and markers flush with the surface of the ground are recommended. In Section 10 this restriction is final and must be adhered to. Lot owners should consult with the Superintendent in regard to these matters before placing orders.

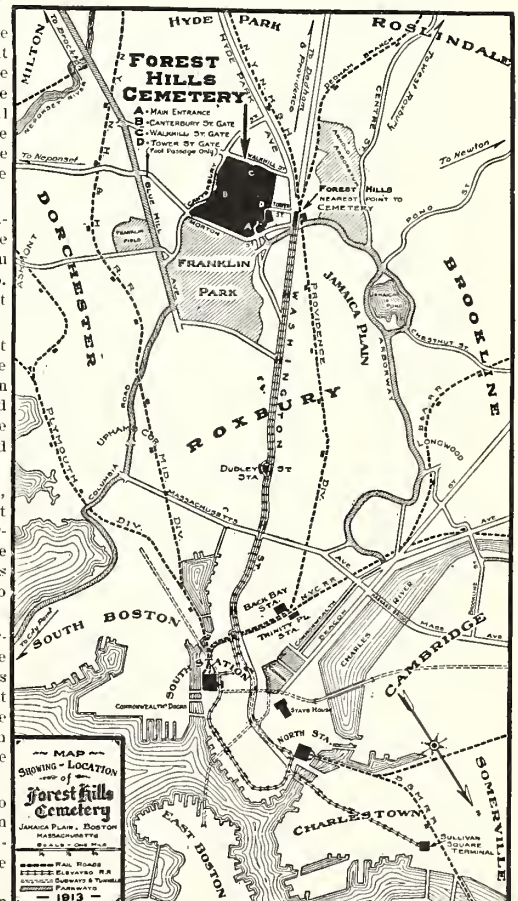
Headstones are allowed on single graves but must not be over two feet four inches by one foot three inches, nor over four feet high above grade. In Section 24, however, designs will not be accepted which are over two feet by one foot or over three feet high. The width of a stone may be increased at the head of two or more graves.

No curbing around lots, corner posts above grade, platforms, steps or buttresses will be allowed except by the approval of the Board of Trustees. In certain designated sections they are prohibited. The removal of unnecessary stone work and iron fences is urged and will be done without extra expense to the lot owners under all ordinary circumstances.

All foundations will be constructed by the Corporation of Portland cement concrete and will be finished at least two inches below grade. Markers should have a twelve-inch butt and slate tablets at least eighteen inches. All orders for the same must be in writing, and the persons signing such orders will be held responsible for the cost of the work.

The charge for building foundations shall be two dollars per square foot superficial area. A minimum charge of five dollars will be made, for each foundation unless several are built in a lot at the same time.

Orders for foundations must be given at least ten

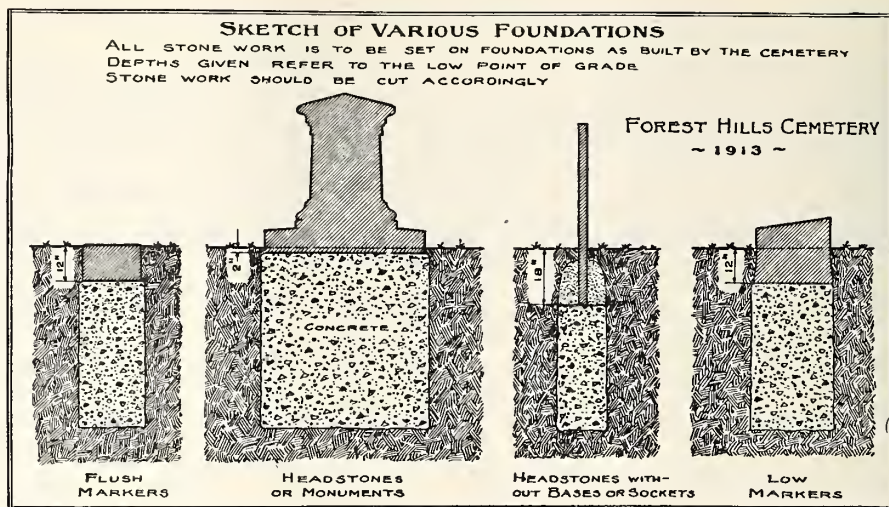


Moving stone, etc., across neighboring lots and attaching gny ropes is forbidden except at such places as the Superintendent may direct. In setting work, employees must be careful not to injure adjoining lots. They must not leave tools, clothing etc., upon lots, and all refuse material must be removed. The grounds must be left in good order.

All work must be done during the working hours of the Cemetery and cease at the sound of the bell at the close of the day.

The annual report of Forest Hills just issued tells of some interesting improvement work accomplished.

The replacing of the old wooden fence with the new iron one has continued, and sections running from Morton street to the stone lodge on Forest Hills avenue, including a handsome new entrance on Canterbury street, have been completed during the year. The work on the grass on perpetual care lots has continued and a large area regraded. The straightening of headstones and markers throughout the cemetery has been finished. Another section of the Field of Manohah has been regarded, and it is hoped to finish this work during the year. This has been a notable improvement in that section of the cemetery. The trees in the cemetery are in excellent



condition, and the gypsy and brown-tail moths under control. A new plan of the cemetery is being prepared, and will soon be ready for distribution.

Ninety-three new lots were sold during the year, and fifteen old lots were placed under perpetual care. Thirteen lots were deeded to the trustees in trust. The in-

crease in the Perpetual Care Fund amounts to \$23,900.75, which would have been \$13,000 larger if taxes had not been assessed by the city of Boston upon this fund. The Fund for the Permanent Care of the Cemetery, after all the lots are sold, is now \$138,469.49, having been increased during the year \$8,916.82.

SOUTHERN CALIFORNIA CEMETERIES

(Special Correspondence.)

The unusually severe weather experienced in Southern California early in January, when an unparalleled record was made, created conditions that were anything but opportune for one from the East to see the parks and cemeteries for the first time. Jack Frost hit every unprotected flower, and there were many. The stately Poinsettias, almost as common in San Diego as sunflowers in Kansas, were cut down in all their beauty, and all soft-wooded shrubs, vines and plants suffered. The daily press has told of the great damage to the citrus industry, but this, it has later developed, was greatly overestimated.

The absence of deciduous trees, common throughout the East, is very noticeable, their places being filled, however, by the Eucalypts, Schinus molle (pepper tree), Acacias, Palms, Monterey cypress, Casuarinas, Araucaria and others seldom seen outside of conservatories east of the Rockies. This is indeed a land of great possibilities for the landscape gardener. Its wealth of plant life is a veritable embarrassment of riches, and the rapid development it makes under favorable conditions is likely to be a pitfall to the uninitiated. The soil, too, must be reckoned with, for what with adobe, hardpan, decomposed granite, sandy loam, etc., all within a comparatively small area, a combination presents itself that the Easterner knows little about and must learn before he can make much progress.

The city of San Diego owns 200 acres

of land which was set apart years ago for cemetery purposes. It overlooks San Diego Bay and the Pacific Ocean, with the San Miguel range of mountains for a background. Here was an ideal setting for a cemetery, but few cities, while in the making, give much attention to landscape plans in improving their cemeteries, and the rule holds true here. Mt. Hope Cemetery has been subdivided into five or more parts. The Masons, the Odd Fellows, the Grand Army of the Republic and the Hebrews have been allotted ten acres each, under separate management, and the remainder of the ninety acres of improved land is controlled by the city. Monterey cypress predominates, some growing naturally into majestic trees, others clipped to resemble great cones, and still others forming border hedges. This handsome evergreen is only hardy in Southern California and the Gulf States.

Adjoining Mt. Hope is Greenwood, a modern lawn plan cemetery of 102 acres, established in 1908 by a company with a capital stock of \$200,000. Eighteen acres have been improved under the direction of J. B. Smith, who for twenty years was in charge of Mt. Hope. One of the improved sections, called Palm Terrace, is dotted with young Cocos, all of them browned by the January freeze. Rose bushes planted by the lot owners and hedges of pink and white Cherokee and Cecil Bruner roses on the borders make a handsome sight during the flowering sea-

son. Water from the famous Sweetwater dam, used on the grounds, costs 2 cents a thousand gallons. A private pumping plant is in prospect.

Kentucky blue grass and clover are used on the lawns with good results, but eternal vigilance is necessary to keep ahead of the insistent Bermuda grass. The roots sometimes go down six feet, making it difficult to entirely eradicate.

As the work progresses Acacias, Eucalypts and pepper trees will be used for avenues and border planting; 1,000 little pepper trees are growing in the nursery for that purpose. Tree planting is not approved of in the sections because of the difficulty of keeping the lawns in good condition. Grave mounds are prohibited and markers are, as a rule, set flush with the turf, so that they do not interfere with the lawn mowers. The erection of mausoleums is discouraged; there are but three in the cemetery. A funeral tent, 16x22 feet, with chairs, decorated grave and lowering device are furnished for \$10, which includes cost of opening grave. The grave decorations consist of pepper boughs tacked on muslin.

An office building and superintendent's residence combined, built in the mission style at a cost of \$5,000, is opposite the main entrance, at the terminus of the electric car line. Superintendent Smith is ably assisted by his son, Frank, in the care of the office and grounds.

ASKED AND ANSWERED

An exchange of experience on practical matters by our readers. You are invited to contribute questions and answers to this department

Cribbing for Graves.

Editor Asked and Answered Dept.: In answer to Mount Zion Cemetery Co.'s inquiry in your last issue, I will tell you how I have made a grave cribbing that does fine. I had some boards made, 1½ inches thick and 8 inches wide. The top ones I made into a square box, 7½ feet long and 34 inches wide inside. Then I had some pieces of iron made of 1¼-inch wide strap iron, with an eyehole on one end and a hook on the other that I screwed on, two on each side and two on each end; then I cut boards the same length as the ones in the box and put on the iron the same way. I start my graves so that the box will just set in. When you get down far enough, hook on the sides and then the ends set in so that they keep them in place, and the more it tries to cave the tighter they are. I use three boards below the box, and in this way I can dig a grave between two and don't have any trouble at all, and our ground is all gravel and stone, the worst kind to cave. This does not cost much, and I can recommend it to all superintendents.

W. A. CONKEY,
Ware, Mass. Supt. of Cemeteries.

Plans for Rest Houses Wanted.

Editor Asked and Answered Dept.: We want a plan for a rest house or pavilion for our cemetery. Can you help us any with suggestions? We can put only about \$800 into this house. H. A. ALDRICH.
Neoga, Ill.

Dear Sirs:—Our association is still talking shelter house or a small chapel, and we hope to be able to build this summer something to cost from one to two thousand dollars. Can you give us any help as to plans? Have seen nothing in your magazine at so small a cost.

MRS. H. C. JOHNSTON,
Sec'y Ladies' Evergreen Cemetery Assn.
Superior, Neb.

PARK AND CEMETERY had quite an extended article with a number of illustrations of small chapels and shelter houses in the issue of May, 1911, but this issue is now out of print. In this article Hare & Hare, Kansas City, Mo., offer to furnish working plans and specifications for the little rest house of theirs illustrated in this connection.

We have occasionally other illustrations of chapels and receiving vaults, but this article gives more information than anything else.

Any of our readers who are interested in designing or building such shelter houses are invited to correspond with the inquirers above mentioned.

Perpetual Care Forms.

Editor Asked and Answered Dept.: In answer to request of your correspondent, I enclose copy of form used here for perpetual care fund.

Ware, Mass. W. A. CONKEY,
Supt. of Cemeteries.

The Cemetery Commissioners hereby certify that they approve of the sum of one hundred dollars as sufficient to warrant the Town assuming the preservation and care of Lot No. in Section. in Aspen Grove Cemetery, in accordance with the following conditions:

First. The Commissioners shall expend annually such sums of money, not exceeding four per cent. on the above named sum, as they shall deem necessary to keep in suitable condition and preservation the soil, grass and memorials on said lot

Second. To suffer the surplus, if any, of the interest on the said sum to accumulate for such time as the said Commissioners may deem expedient, or in their discretion to apply the said surplus, or any part thereof, from time to time, to the ornamentation and preservation of the said Cemetery.

Third. That the said Town of Ware shall never be responsible in the premises, except for good faith and such reasonable diligence as may be required of mere gratuitous agents.

.....
.....
.....

Cemetery
Commissioners.

Approved by
The treasurer of the Town of Ware hereby acknowledge the receipt of one hundred dollars from on the conditions above mentioned, which are hereby made a part of and included in this receipt.

.....
Treasurer.
Ware, Mass., 191

Preventing Scaling of Receiving Vault Walls.

Editor Asked and Answered Dept.: I have read a good many articles in PARK AND CEMETERY regarding the trouble contractors experience in constructing receiving vaults and chapels, in such a way as to avoid expansion and contraction of material but nothing regarding the matter of finding a way to prevent the paint or other finish from flaking and scaling from the walls. This is a matter which has given us a great deal of trouble. We have repeatedly had the walls refinished, only to see the finish strewn about the floors of the chapel and vaults after each winter. The construction is stone, with plaster inside, and oil and lead finish. We have a hot-air furnace, but have not used it except when chapel was in use for a funeral, and are now considering the proposition of maintaining a steady (low) fire throughout the winter as a more economical plan than the cleaning up of walls and repainting them every spring. In your opinion, would we find this plan successful or can you make a suggestion regarding some more practical plan? Chapel has been kept closed except as above stated, except that on clear, bright days we occasionally open windows and doors during the middle of the day.—F. W. T., Conn.

To make a specific reply to the foregoing communication and suggest a remedy particularly applicable in the premises, one should know more of the particulars. The correspondent does not say whether the plaster is in immediate contact with the stone walls of the chapel—that is, plastered on the walls—or is on lathing in the usual way, but as instances of oil paint scaling from lath and plastered walls, even in unheated rooms, are very rare, except when the paint has become very old and dry, and as the correspondent's trouble is of unusual occurrence, it is perhaps safe to assume that the plaster is in direct contact with the stone walls or possibly on a solid brick backing or lining. In any event, in the absence of fuller information we may perhaps profitably discuss the subject in a general way, from which the correspondent may possibly deduce a remedy worthy of his consideration and adoption.

Omitting a discussion of exceptional cases beyond a mere allusion to them, I may say in a general way that trouble of this nature is due to two principal causes; first, the presence of excessive moisture due to condensation or saturation of the walls from the outside or leakage from the roof finding its way into the interior of the wall, and, second, to the presence of salts in the mortar or brick, which, if subjected to any considerable amount of moisture, are decomposed and almost immediately find their way to the surface. In the first instance, if the moisture or water is free from alkali or other salts the paint is gradually detached and forced off, the trouble being first made manifest by blisters, which will be found filled with water; sloughing soon follows. The salts, on the other hand, usually decompose the paint in a very short time, which is detached in dry scales or mingling with the efflorescence of the salts falls to the floor, as described by the correspondent, or is easily brushed off. Nearly all kinds of mortar and brick are more or less impregnated with these salts. They may never manifest themselves if the walls remain perfectly dry, but they will become active and appear where there is moisture in the material, the amount of efflorescence usually varying in quantity according to the degree of moisture. Stone and solid brick walls, more especially the former, are apt to draw and transmit to the interior in certain temperatures and conditions of the atmosphere a considerable amount of moisture. This may be arrested by an insulation or air space separating the exterior walls from the plaster or finish of the interior, but if the plaster is directly on the wall the moisture will readily penetrate that and come to the surface. The ordinary style of lath and plaster usually proves a preventative, although instances have been known in unheated

buildings where blistering and scaling of the oil painted walls has occurred, if not due to age, then probably to the presence of salts in the mortar decomposed by the moisture absorbed by the plaster from the interior of the wall. Architects and builders familiar with these conditions know that an inner lining of ordinary brick, although isolated by an air space from the exterior walls of the building, is no guarantee that the salts in the brick or mortar will remain inactive, for the reason that air from the interior of the building being usually warmer than the external atmosphere, will find its way through the porous material of the brick into the air space and there in cold weather condense on the brick and be absorbed, causing decomposition of the salts, as previously described, with consequent damaging results if the walls are painted. This trouble is not uncommon in buildings so constructed, even if kept heated, as suggested by the correspondent. On the other hand, if the lining is of hollow brick or tile, providing for two or more air spaces, there is seldom any trouble from condensation and its consequent evils, yet there are exceptions, so that in looking for a remedy one should not overlook them, but take every known precaution. Enough perhaps has been said regarding the causes of troubles of the nature of that now under consideration. Let us now consider the usual remedies.

I have already intimated that trouble of this nature may be minimized or possibly entirely avoided by some plan of insulation, and yet experience has shown that that is not always effective; consequently, where possible, it is advisable to adopt other precautionary or remedial measures. Water-proofing materials and compounds of comparatively recent introduction are now extensively used and usually with very satisfactory results. For example, where it is necessary to plaster directly on the walls the interior of the walls are first coated with one or more applications of water-proofing compound before applying the plaster, the plaster again in some instances being painted with one or more coats of the compound before the oil paint or finish is applied. In one instance in which I am directly interested we have had considerable trouble with one room which is always heated. This room is lined with a 4-inch wall of common pressed brick of good quality isolated from the exterior stone wall on one side of the room by a space averaging about two inches. The walls are painted in oil colors. No trouble was experienced with the interior walls, but for several years the paint on the exterior walls of the building, notwithstanding the insulation, continually sloughed off, apparently due to the moisture in the brick, caused by either leakage or condensation, more probably the latter. In repainting we always took

the precaution to dry the walls as much as possible with gasoline torches before applying the paint, but invariably with the same result. At last my attention was called to one of these water-proofing compounds and I decided to try an experiment. The paint was burned off the wall as clean as possible and two coats of the compound applied, with a view to filling and sealing the pores of the brick and mortar. This was followed by three coats of oil paint. Complete success was neither promised nor anticipated, as to insure the best results water-proofing should be applied on the side of the wall from which the moisture penetrates, but in this instance the result has been most satisfactory, for though it is four years since this work was done, we have had practically no further trouble. I allude to this instance (not by any means an exceptional one) the more particularly to show, first, that the heating of the room did not prove a preventative, and, second, that relief may be obtained by water-proofing the walls even on the inside. This experience would suggest a remedy for the correspondent in the present instance if the walls of his chapel are plastered directly on the stone work. To burn off the paint in this instance, however, may be impracticable, and if the building is large, costly, so that the adoption of some other plan may be preferable. The plaster might be removed, as is done in some cases, the stone water-proofed by several coats of the best compound obtainable and then replastered. This is generally a reliable remedy, but it might be more practicable and probably more economical to fur, lath and plaster on top of the present wall finish. Casings of doors and windows could easily be reset. Even then, if the building is not to be kept heated, it would be advisable to coat the walls with water-proofing before painting. It would not generally be considered necessary to adopt this precaution on walls so constructed, but very little additional expense would be incurred. Again, if a brick lining was considered desirable for greater permanency, a hollow brick should be used and water-proofed before painting. I would suggest here that a very neat and appropriate finish for the interior of a cemetery chapel is a colored pressed brick of some quiet and harmonious tone. This requires no painting and may be easily cleaned, although that is seldom necessary.

If the walls of the chapel in question are lathed and plastered, the trouble is probably due, as already intimated, to salts in the mortar. A comparatively cheap and probably effective remedy would be the removal of the plaster, replacing it with adamant, water-proofing as suggested, and finishing in oil paint. Unheated buildings, particularly those of ordinary structure, generally suffer to a considerable extent

in our climate during very cold and damp weather, consequently if at all convenient, as it probably would be in the present instance, it undoubtedly would be economical as well as perhaps remedial to keep the chapel heated. Any moderate temperature above freezing point would suffice for purposes of preservation. But if the chapel is used so seldom and it would be inconvenient and perhaps impracticable to keep it constantly heated, which might be considered troublesome and perhaps wasteful, then a fairly reliable remedy may be found in the foregoing suggestions.

JAMES CURRIE,

Supt. Forest Home Cemetery.

Milwaukee, Wis.

Not knowing the exact conditions prevailing with your correspondent regarding the trouble he reports with the interior finish of his chapel flaking and scaling from the wall, it will be difficult to recommend a remedy.

If the interior is a hard, smooth plaster finish, probably the best remedy will be what your correspondent himself suggests, namely, to maintain during the winter months a low, steady fire, to prevent the walls from becoming damp and freezing.

If the interior plaster is a cement sand or rough cast finish, it would be a good plan to give same two coats of a good damp-proofing material; of such there are several in the market, one notably manufactured in Detroit, Mich. They can be applied with a brush and are very durable and weather-resisting.

If interested, your correspondent can obtain more information direct from The Trus Con Laboratories, 1250 Trus Con Building, Detroit, Mich., or the Garden City Sand Co., Chicago.

FRANK EURICH,

Detroit.

Woodlawn Cemetery.

In reference to paint scaling from the walls of receiving vaults and chapels, this will always occur where the frost is allowed to enter the building, and no way has been found to prevent this where oil or lead paint is used. My theory is that most wall finishes will cling to the surface by a small portion entering the pores of plaster. Where freezing takes place expansion displaces the finish. There are now on the market several compounds that are claimed to penetrate beyond the surface, but unless the interior is of Portland cement plaster, I doubt whether the stain would penetrate. Your correspondent suggests that the building be kept heated. This undoubtedly would prevent most of the trouble, if not eliminating it altogether. It might not be out of place to state in the construction of chapels and vaults that no plaster finish should be used.

BELLETT LAWSON, JR.,

Supt. Elmwood Cemetery.

Chicago, Ill.

ANOTHER MAUSOLEUM PATENT INVALIDATED

The suit for infringing on a patented mausoleum construction brought by Maurice L. Knight against H. P. Rieger & Co., of Baltimore, has finally been concluded, and a study of the claims in the case and the evidence submitted will be of much interest to mausoleum builders.

The judge's decision was a sweeping victory for the defense in every particular, and disposes definitely and conclusively of the claims for a patent that embodies nothing but the common methods of mausoleum construction that have been in practice for many years. We quote as follows the court's decision in full:

The Judge's Decision.

On December 27, 1910, letters patent No. 979,965 were issued to the complainant. He still owns them. By his bill filed February 1, 1911, he alleged that the defendants had infringed upon the claims thereof. He asked for a preliminary injunction. The patent had not been adjudicated. It had but recently been issued. There had been no long general acquiescence in its validity. Nevertheless, the affidavits seemed to show the existence of some special circumstances which made a preliminary injunction proper as against some of the defendants. It was issued. The patent has relation to the construction of vaults or mausoleums for the dead. The patentee says that his invention consisted of improved means for ventilating, draining, closing and sealing the crypts of such mausoleums and in other novel features of construction. No specifications of such novel features is made. They are supposed to be written large on the face of the patent and of the claims and to be recognizable by that ideal person, a man skilled in the art. It has not been suggested that there are in fact any novel features about the method of closing and sealing crypts. At the hearing of the motion for a preliminary injunction it was vigorously contended that the way of ventilation and drainage shown in the patent is both new and useful. It will be necessary to describe that method of ventilation. It is adapted to mausoleums of the usual construction. In these, the crypts are oblong stone or slate boxes, each of a size sufficient to contain a single burial casket. These crypts are arranged one above the other. One of the sides of each crypt is towards the interior of the mausoleum. It is through this side when open that a casket is placed in the crypt. The opposite side is parallel to the inner side of the external wall of the mausoleum. The problem is to afford means of ventilating and draining the crypts into the open air while preventing all escape of air or liquids from them into the interior of the mausoleum. For the accomplishment of the former of such purposes, the patent directs that there shall be a space of some inches in breadth between the back walls of the crypts and the inner face of the exterior walls of the mausoleum. In the back wall of each crypt there are vents, one or more on the plane of the upper surface of the bottom slab or floor of the crypt and one or more near the plane of the under surface of its top or cover. These vents open into their air space between the crypts and the mausoleum wall. The wall is pierced with one or more openings at or near the surface of the ground and with one or more at the top of the wall. It may also be desirable to have the ceiling fit closely upon the top of the crypts and to leave between it and the roof proper an air-space connecting with the air-chambers between the crypts and the inner wall or walls of the mausoleum. In order that none of the air from the crypts shall escape into the interior of the mausoleum it is necessary to close by a suitable slab or wall all possibility of communication between these air-chambers and such interior.

At the final hearing it was practically admitted that there was nothing novel in this method of ventilating and draining the crypts. It was old at the time of the plaintiff's alleged invention.

At the argument at the bar the contention of the plaintiff practically resolved itself into the claim that it was new to combine with this method

of ventilation the arrangement by which each shelf of each crypt was secured in the wall of the mausoleum.

The plaintiff is able to preserve the old ventilating system with its air-chamber and to secure the crypt shelves in the mausoleum walls by the simple expedient of cutting out of the rear edge of each shelf for the greater portion of its length a rectangular strip of the approximate width of the desired air-chamber. This rectangular cut does not extend to either end of the shelf. There is, therefore, left at each end a projecting tongue which bridges the air-chamber and is secured in the mausoleum wall.

It is not shown that any burial vault arranged precisely in this way had ever been made before the complainant applied for his patent or had ever been theretofore described in print or otherwise.

It is admitted that no part of defendants' shelves extend into, or across the air-chamber. Complainant claims, however, to find in defendants' construction the equivalent of such shelf extension.

It is admitted that in defendants' construction there are a number of bricks wedged in the air-chamber and between the back wall of the crypt and the inner surface of the mausoleum wall. Such bricks are secured in place by plaster of paris and, as complainant contends, in some instances at least by wiring and other means. Defendants deny that these bricks form any part of their scheme of construction. According to their contention the bricks were placed where they were at the time the crypts were constructed for the purpose, and solely for the purpose of holding the back walls in position while the workman was engaged in securing them permanently to the top and bottom shelves. The bricks had no other purpose, and when that was accomplished their usefulness was at an end.

It is not necessary to spend time in inquiring what was the purpose of the bricks. Complainant has no right to a patent so broad that it will cover any means of securing the shelf of a crypt to the wall of a mausoleum or of supporting a shelf by a wall. Yet he is not entitled to a decree in this case, unless whenever the old method of ventilating and draining the crypts is used and the crypt shelves are secured in or to the mausoleum wall, his rights are infringed.

It is said that this is an application of the familiar rule, that a new combination of several old things may be patentable.

It is not in any wise suggested in the evidence that the projecting tongues of the crypt shelves in complainant's device play any part in ventilating or draining the crypts. That system of ventilation will work just as well whether the shelves are secured in the back wall or not. While the system of ventilation was old, it might conceivably have been found objectionable in practice because the crypt shelves were not secured to the mausoleum wall. If such had been the case, that method of ventilating could not have been made practically useful until some way of overcoming this difficulty had been provided.

I find nothing in the testimony to show that there ever had been any such difficulty. The securing of the shelf to the wall does not in any way contribute to the ventilating and draining of the crypts. The crypts are drained and ventilated precisely as they were in the prior art. The shelf is secured in the back wall in precisely the way in which many shelves time out of mind have been secured in all sorts of structures. Under such circumstances what the patentee claims is not a combination, but an aggregation.

It is difficult to say what may not amount to invention. A want may have been long felt. Many may have attempted to meet it without success. Someone solves the problem. The solution then appears to be simplicity itself. For all that there may be invention. It would take clear and convincing evidence that the need had been appreciated, and that others had tried to supply it before I could personally feel that there was any invention in securing a shelf to a wall in the way described in the patent in suit. In point of fact there is nothing in the record to suggest that anyone had ever before tried and failed to accomplish what the patentee says he has done.

In view of the admitted state of the prior art, I can find nothing even remotely suggestive of invention in anything which the plaintiff claims to have done. One cannot appropriate to himself a part of the public domain unless he pays for it

by contributing something to the world's store of useful knowledge.

The case has thus far been dealt with upon the assumption that a mausoleum of a particular construction was something, which, when new and useful was patentable. For the reasons already stated, it becomes unnecessary to inquire whether this assumption is well or ill founded. The learned author of Walker on Patents, 4th edition, page 13, contends that the word "manufacture" as used in the patent law should be given a construction broad enough to cover everything made by the hands of man and not a machine or a composition of matter.

The weight of the decided cases is to the contrary.

Jacobs v. Baker, 7 Wall. 295;

Fond du Lac County v. May, 137 U. S. 395;

American Disappearing Bed Co. v. Arnaelsteen, 183 Fed. 324;

International Mausoleum Co. v. Sievert, 197 Fed. 930.

It is not expedient to attempt to draw the line between the kinds of things for which a patent may properly issue and those for which it may not, unless the drawing of such line is absolutely necessary to the proper decision of the case. There is no such necessity presented by this record.

The preliminary injunction, heretofore granted will be dissolved and the bill of complaint dismissed.

The claim of the Knight patent, as set forth in the patent specification, read as follows:

"In a vault or mausoleum, horizontal shelves having their rear edges secured in the inner face of a wall of the same and having rectangular openings at said edges extending for the greater portion of the length of the same and registering vertically, and vertical side and back walls forming loculi between said shelves having their back walls secured at the inner edges of the openings in the shelves to form a vertical air-chamber between the back walls and the wall of the mausoleum and through said openings, the wall of the mausoleum having openings at the top and bottom of the air-space."

W. B. Smith, attorney for Mr. Rieger, in discussing these claims said:

"The horizontal shelves in the defendants' structure do not extend in any instance or to any degree whatever beyond the back vertical slabs, and are not tied to or secured in the wall of the structure. The only connection of any kind between the back vertical slabs of the crypts and the wall of the main structure in the rear consists of a brickbat or handful of plaster inserted at random between the back vertical slabs and the wall solely for the temporary purpose of holding the back slab in a perpendicular position until doweled and clamped to the bottom slab by the setter; and this temporary brickbat or plaster does not form an extension of the horizontal shelves or serve to secure said shelves in the wall of the structure.

Obviously, the defendants have not infringed Knight's alleged novel construction of horizontal shelves, inasmuch as the shelves of the defendants' crypts do not extend beyond the back vertical slabs, and are not by the use of any equivalent so extended to the main wall.

It is submitted that the defendants' structure wholly dispenses with the complainant's alleged novel construction of the horizontal shelves and the securing of said shelves in the main wall in the rear.

The horizontal shelves, as well as the back slabs, are not secured, and were not intended to be secured in or to the main wall, for these shelves require no such security, inasmuch as they are clamped to the back slabs and the whole crypt structure is secured and supported on its own foundation. Indeed, defendants' witnesses declare that to secure the horizontal shelves in or to the main wall would be faulty and inadvisable.

DATES OF A. A. C. S. CONVENTION

EDITOR PARK AND CEMETERY: The local committee in charge of the 1913 convention of the A. A. C. S. at Buffalo got together on April 3, 1913, and decided upon the following:

Headquarters will be at Statler Hotel. Date, September 17, 18 and 19. Program:

FIRST DAY—MORNING SESSION.

Mayor's address of welcome.
President's address.
Reception of new members and roll-call.
Report of secretary and treasurer.
Appointment of committees.

AFTERNOON SESSION.

Papers and discussions.

SECOND DAY.

Automobile trip, starting at 9:30 a. m. Run out Delaware avenue to Elmlawn Cemetery; return to Forest Lawn Cem-

etery, where a session will be held and light luncheon served. Proceed to Pine Hill Cemeteries and Public Mausoleum; thence to South Park and Conservatory there, and return to headquarters.

THIRD DAY.

Trip to Niagara Falls, starting from Buffalo by boat to Schlosser's Dock; thence by trolley to Falls and around by way of Gorge Route, stopping at Victoria Park for luncheon, with stops at other points of interest.

Papers and other details to be decided later.

BELLETT LAWSON, JR.,
Secy. and Treas.

"Elmwood," Chicago.

The convention committee is composed as follows:

F. W. Werick, "Ridge Lawn," Buffalo.

Jno. W. Keller, "Mt. Hope," Rochester.

F. Sheard, "Riverside," Rochester.

Largely under the care of the ladies, Miss Charlotte L. Buck, secretary; Miss Novella J. Trott, treasurer, and Mrs. Maud S. Ham, auditor, the Riverside Cemetery Association, of Woolwich, Me., is under constant improvement, the work of the superintendent, Edward H. Carleton, whose plans will be completed this summer, being highly complimented.

New Cemeteries.

Plaza, Wash., has decided to have a cemetery of its own. An association will be incorporated.

The Board of Health of Leicester, Mass., at a hearing on the matter of granting land of the Harvey Wilson farm, Rochdale, to the Lithuanian speaking people of Worcester, for cemetery purposes, decided in favor of allowing Worcester church people the right to have the land.

Joseph Sawatskie, of South Deerfield, Mass., better known as Joseph Roche, has given four acres of land to St. Stanislaus Society for a Polish cemetery. This land is adjoining the South Main Street Cemetery on the east.

At a recent meeting of the City Council of Lake Charles, La., an ordinance was passed providing that the Catholic cemetery at Common and Iris streets be closed within sixty days. It is understood that the church has purchased another tract of land east of the city to be used as a burial ground. The Catholic cemetery is the last one in use within the city limits.

A real estate transaction of interest to Cedar Rapids, Ia., took place recently, when the Evergreen Cemetery Association purchased the Stone homestead, which lies just north of the present cemetery. It is a beautiful spot consisting of twelve acres, and the consideration was \$8,000. It has long been understood that when the site was for sale the association should have the privilege of buying it, as it is the logical site for addition. A landscape gardener will be secured to lay it out.

At a meeting of the township board of health at Comstock, Mich., a committee from the Civic Improvement League presented plans for a new cemetery, which met with the approval of the board. The cemetery here is one of the oldest in Kalamazoo county and has gotten into such condition that a storm of protest against its further use has been inaugurated.

The Farragut, Iowa, Cemetery Association has adopted a constitution and by-laws and elected officers and is now regularly organized. The women of the community will be the active members, and all men desiring may be honorary members. A permanent sexton will be secured at once, who will devote his entire time to the cemetery.

(Concluded on page VI)

CEMETERY NOTES

Improvements and Additions.

After several years' fighting in the courts, the Square Lake Burial Association, of Cole Station, Mich., is utilizing part of the money left it in the will of the late Noah Tyler. Mr. Tyler left the association the bulk of his property to be used in the erection of a burial vault in the cemetery and an iron fence around it. A contract has been made for a granite receiving vault costing \$6,500, to be erected as soon as possible. The structure will be of Barre granite, 12 by 18 feet, with bronze entrance gates and tile flooring. Colonial columns will ornament the front. The contract was awarded the Sheldon Granite Company.

Work on the Hubbard Memorial Chapel, Meriden Cemetery, Meriden, Conn., will be started about May 1.

The cemetery at El Dorado, Ark., is being considerably improved. The Rev. John Stanly Thomas has raised and expended some \$1,700 in the grounds and the approach road, and will make an effort to continue the good work.

Plans for decided improvements in B'nai Israel Cemetery, Salt Lake City, Utah, were filed with the city commission recently and were approved. An ornamental iron and concrete fence will be built on a line with the city cemetery inclosure and a parking strip will be made along the fence. A large greenhouse will also be erected.

The Quinnipiac Cemetery Association, Southington, Conn., voted to accept the offer of Mrs. Clark, widow of Senator

William J. Clark, of Stony Creek, of \$1,000 in addition to the \$500 previously given by her toward a fund to provide for the erection in the cemetery of a mortuary chapel. In addition to the \$1,000 given by Mr. Clark the association has about \$500 which will be added to the chapel fund.

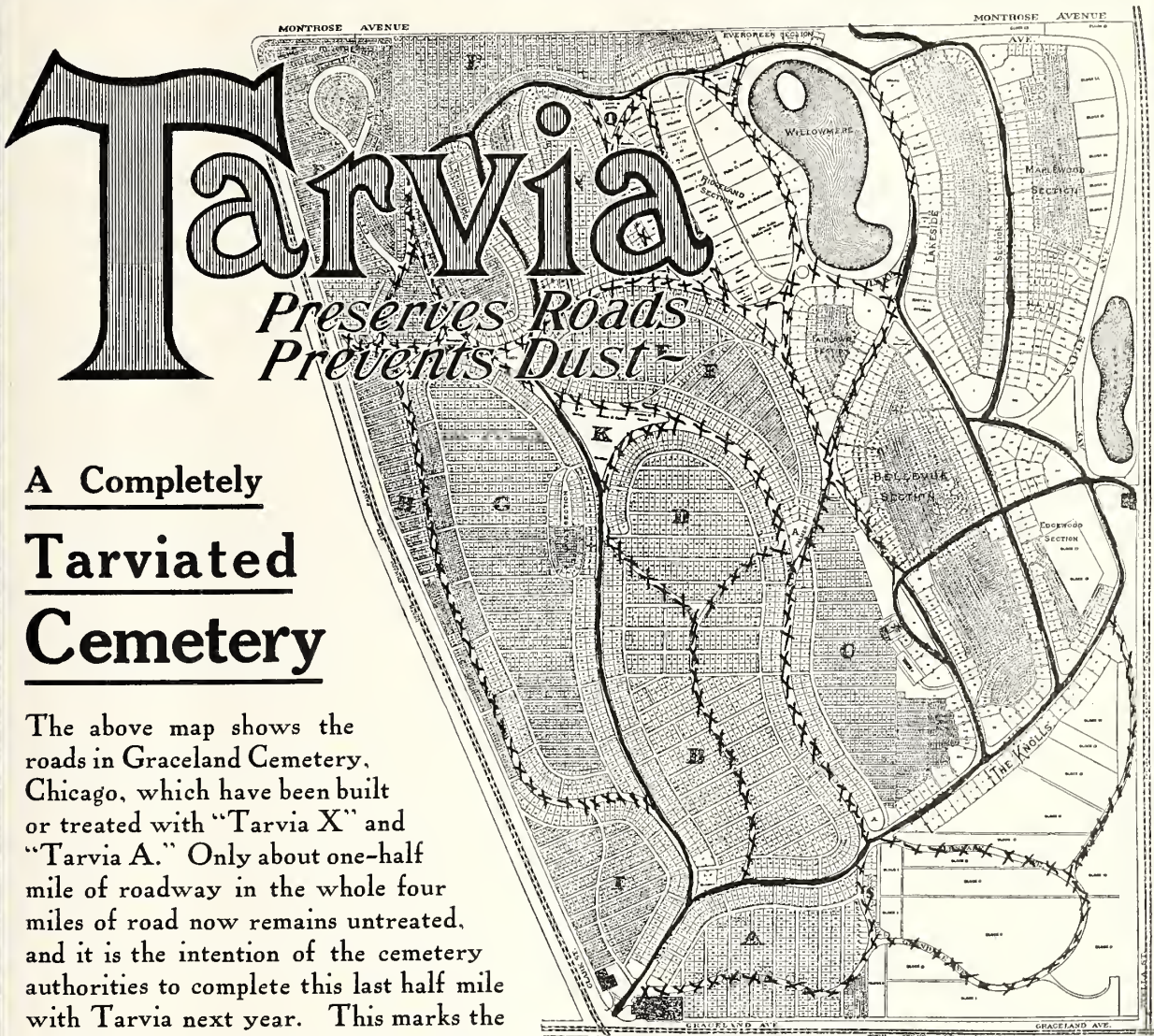
A general meeting of the lot owners of Eastside Cemetery, Hutchinson, Kan., was recently held to discuss plans for the improvement of the cemetery. General conditions are to be improved and the grounds will be made more attractive.

The city cemetery committee of Waitsburg, Wash., has employed a landscape architect to plat and lay out the grounds for permanent improvements. This has been made possible by the generosity of William G. Preston, who offered to duplicate every dollar of voluntary contributions from the citizens. As a result the committee has over \$4,000 to work with. Several acres lying below the hill have been acquired to enlarge the cemetery.

The Center Street Cemetery Association, of Wallingford, Conn., is striving to raise \$500 this spring for beautifying their grounds.

The Home of Peace Cemetery, Portersville, Cal., will have upwards of \$500 expended upon it this spring to make it a beauty spot.

The Mansfield Center, Conn., Cemetery Association is gathering funds for improvement, which will include a new fountain.



A Completely Tarviated Cemetery

The above map shows the roads in Graceland Cemetery, Chicago, which have been built or treated with "Tarvia X" and "Tarvia A." Only about one-half mile of roadway in the whole four miles of road now remains untreated, and it is the intention of the cemetery authorities to complete this last half mile with Tarvia next year. This marks the completion of a policy that began in 1906, when the first experiments were made with 1,453 gallons of Tarvia on the cemetery roads.

Key to } Black Line (—) shows "Tarvia A" Roads
Above Map } Crosses (XX) show "Tarvia X" Roads

The 1906 results were such that about 8,000 gallons of Tarvia were used in 1907. Then the policy was adopted of pushing the extension of the Tarvia work until every road had been treated. It has been a consistent and successful policy. The amount of Tarvia used during 1912 was nearly 25,000 gallons and the total amount used during the seven years has been 130,000 gallons.

Geo. L. Tilton, the Superintendent, a leading authority on cemetery problems, has reported the Tarvia work to be satisfactory year after year.

The reasons for adopting Tarvia were its cheapness, results considered, its ability to withstand the haulage of heavy monuments, its waterproof surface, which resulted in instant drainage, leaving the roads in a fit condition for pedestrians immediately after a rain; its quietness, its fine, smooth, well-kept appearance and most of all its low maintenance cost as compared with plain macadam.

Tarvia is a special preparation of coal tar for road use. It forms a tough plastic matrix between the broken stone and prevents erosion by water and traffic.

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An Index to articles on Gardening, Forestry, Park, Cemetery and Civic Improvement and kindred subjects in leading general and special magazines

Subscriptions will be received for any magazine or periodical at club rates with Park and Cemetery. Publications in which articles appear are listed below, and referred to by abbreviations, thus S. L. 8:67-8, Feb. 09, means: Suburban Life, vol. 8, pages 67-8, February, 1909.

Single copies should be ordered direct from the publications at addresses given below

PUBLICATIONS INDEXED AND ABBREVIATIONS USED

American Botanist, Joliet, Ill. (A. B.), 75c year; 20c copy.

American City, The, (Am. C.), New York, \$2.00 year; 25c copy; back numbers, 25c.

American Florist, Chicago (A. F.), \$1.00 year; 5c copy.

American Homes and Gardens, New York (A. H. G.), \$3.00 year; 25c copy.

Architectural Record, New York (Arch. Rec.), \$3.00 year; 25c copy.

Art and Progress (A. & P.), Washington, D. C.; \$1.50 year; single copy 15c.

Canadian Florist, The, Peterboro, Ont., Can. (C. F.), \$1.00 year; 10c copy.

Country Life in America, New York City (C. L. A.), \$4.00 year; single copy, 35c.

Country Gentleman, Philadelphia, (C. G.), \$1.50 year; 20c copy.

Century Magazine, New York City (Cent.), \$4.00 year; 35c year.

Chautauquan, The, Chautauqua, N. Y. (Chaut.), \$2.00 year; 25c copy.

Craftsman, The, New York City (Cr.), \$3.00 year; 25c copy.

Embalmer's Monthly, Chicago (E. M.), \$1.00 year; 10c copy.

Fern Bulletin, Joliet, Ill. (F. B.), 75c year; 20c copy.

Florists' Exchange, New York City (F. E.), \$1.00; single copy, 5c.

Florists' Review, Chicago (F. R.), \$1.00 year; 5c copy.

Fruit Grower (F. G.), St. Joseph, Mo., \$1.00 a year; 10c copy.

Gardener's Chronicle of America, Jersey City, N. J. (G. C. A.), \$1.00 year; single copy, 10c.

Garden Magazine, Garden City, N. Y. (G. M.), \$1.50 year; single copy, 15c.

Gartenkunst, die, Frankfurt, Germany (German), G. K., \$4.00 year; 50c copy.

Good Roads, New York (G. R.), \$1.00 year; single copy, 10c.

Horticulture, Boston (Hort.), \$1.00 year; single copy 5c.

House Beautiful (H. B.), Chicago; \$3.00 year; 25c copy.

House and Garden, Philadelphia (H. G.), \$5.00 year; 50c copy.

Independent, The, New York (Ind.), \$3.00 year; 25c copy.

Landscape Architecture (L. A.), Harrisburg, Pa.; \$2.00 year; 50c copy.

Minnesota Horticulturist, Minneapolis (M. H.), \$1.00 year; single copy, 10c.

Moeller's Deutsche Gaertner-Zeitung, Erfurt, Germany, (German), M. D. G., \$3.00 year; 10c copy.

Monumental News, Chicago (M. N.), \$1.00 year; single copy, 10c.

National Nurseryman, Rochester, N. Y. (N. N.), \$1.00 year; single copy, 10c.

Revue Horticole, Paris (Rev. Hort.), French, \$4.50 year; 50c copy.

Scientific American, New York (Sci. Am.), \$3.00 year; 10c copy.

Suburban Life, New York (S. L.), \$3.00 year; 25c copy.

Civic Improvement, Home Grounds.

City of the Future, The. A. H. G. 10: Sup. 11. March, 1913.

Factory, The, Moving it Back to the Land, at Torrance, Cal., by W. Willard. Sunset Magazine, San Francisco. 30:299-304. March, 1913.

River: How a Town Used a River, by J. A. Rawson, Jr. Illust. S. L. 16: 247-8. April, 1913.

Street Fixtures and Furnishings, by Frank Koester. Illust. Am. C. 8:245-52. March, 1913.

Gardens and Landscape Gardening.

Carpet Bedding, by Edgar Rasch, G. K. (German). 15:83-86. March, 1913.

Color in Plants, The Uses of, by Willard N. Clute. Illust. S. L. 16:241-2. April, 1913.

Color Arrangements in Gardens. Cr. 23:704-6. March, 1913.

Garden Designs, Some New, by G. Ammann. Illust. G. K. (German). 15:57-9. March, 1913.

Japanese Garden, Our Little, by D. M. T. Willis. Illust. S. L. 16:237-8. April, 1913.

Lawns and Their Care. Illust. Cr. 23: 695-7. March, 1913.

Pergolas in the Garden, by A. V. Main. Illust. C. F. 8:67-8. March, 14, 1913.

Planting Table of Annuals and Perennials, by I. D. Bennett. A. H. G. 10:78. March, 1913.

Prolonging the Garden Period by an Early Start. Illust. Cr. 23:707-9. March, 1913.

Rose Garden and Rosarium in Berlin, Competitive Design for. Illust. G. K. (German). 15:41-50. February, 1913. Also M. D. G. (German). 28:113-14. March 8, 1913.

Water Gardens, Natural and Artificial, by G. V. Nash. Illust. Cr. 23:648-59. March, 1913.

Wild Flowers for the Home Garden, Capturing. Illust. Cr. 23:615-27. March, 1913.

Parks, Cemeteries, Public Grounds.

Central Cemetery at Erfurt, Competitive Designs for. Illust. G. K. (German), 15:73-83. March, 1913. Also M. D. G. (German). 28:88-90. February 22; and 28:126-28. March 15, 1913.

Greenhouse Construction and Equipment, by W. J. Wright. A. F. 40:337-9. March 8, 1913.

Parks, Small, an Experiment in; Lebanon Trust. Illust. Survy, New York. 29:749-53. March 1, 1913.

Road Building, Concrete, in Wayne County, Michigan. Illust. G. R. M. 43: 161-4. March 1, 1913.

Road Oil, Municipal Plants for the Storage of, by W. H. Kershaw. Illust. G. R. M. 43:148-50. March 1, 1913.

Rock Asphalts of Oklahoma and Their

Use in Paving, by L. S. Snider. Illust. G. R. M. 43:158-60. March 1, 1913.

Trees, Shrubs and Plants.

Shade Trees and Electric Wires, by Alfred Gaskill. Illust. Am. C. 8:270-2. March, 1913.

Shade Tree Planting that Might Have Been Better Done. Illust. Am. C. 8:272-4. March, 1913.

Weed Exterminator, a New, by J. C. Arthur. Science. 37:19. January 3, 1913.

Weed Turned to Profit, by Forest Crissey. Illust. Technical World, Chicago. 18:575-6. January, 1913.

PUBLICATIONS RECEIVED.

Transactions of the Illinois Horticultural Society for the Year 1913, including proceedings of the annual and district meetings and list of members; 475 pages, bound in cloth; also the first Quarterly Bulletin issued by this organization. An interesting feature of the first number is the announcement of cash prizes for a fruit-spraying contest, in which all sections of the state will be represented. The paper is published from the office of the secretary, A. M. Augustine, at Normal, Ill., and will be distributed free to the members of the society and a limited number of other people interested.

"Home Garden Planning," an illustrated booklet issued as Vol. II., No. 34, of the Cornell Reading Courses, Cornell University, Ithaca, N. Y.

"Success with Lawns;" descriptive book on the planting and care of lawns from Wood, Stubbs & Co., of Louisville, Ky.

Catalogs received: Burbank Seed Book, from Luther Burbank Co., San Francisco; "Moon's Hardy Trees and Plants, for Every Place and Purpose," handsomely illustrated, 1913 catalog of Wm. H. Moon Co., Morrisville, Pa.; catalog of Roxford Nursery, of Harlan P. Kelsey, Salem, Mass.; "The Weed Problem Solved," an illustrated booklet on the use of "Herbicide," the weed exterminator, from Reade Mfg. Co., 1021 Grand street, Hoboken, N. J.; wholesale catalog, spring 1913, of Phoenix Nursery Co., Bloomington, Ill.

THE COVER ILLUSTRATION.

We reproduce a splendid photograph on our front cover page of the iron fence designed, made and erected by the Stewart Iron Works Co., Cincinnati, O., to enclose the American League Baseball Park, Chicago.

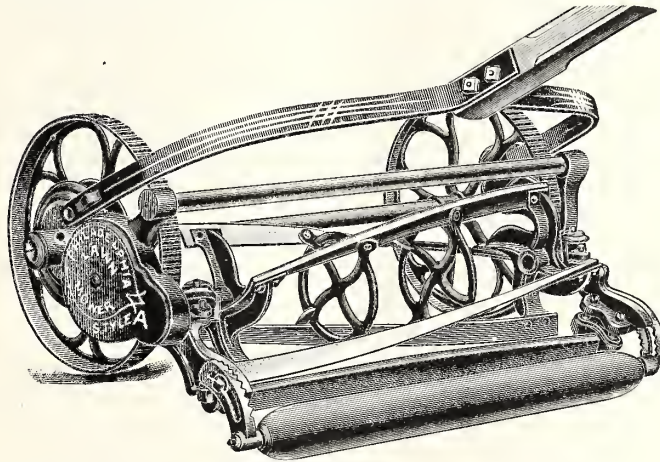
This installation is a very practical and appropriate design of their heavy fence, especially suitable and used extensively to enclose public parks, fair grounds, race tracks and athletic fields, where a plain, strong and substantial fence is required. The practical effectiveness of the design, the rigid construction, the splendid workmanship and finish are marks of quality, skill and experience, which identifies it as a product of the Stewart Iron Works Co.

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EDITORS
John W. Weston O. H. Sample
Subscription, \$2.00 a Year. } Foreign, \$2.25
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The fence, consisting of several thousand feet, which was used to enclose the grounds and also for divisions, partitions and runways, is forty-two inches to eight feet high. The outside enclosure is constructed with one-inch square pickets, the inside fence being the same design, but a lighter weight pattern.

Their patented three-rib channel rail and adjustable line post were used in the construction and add much to the durability of the fence. Both channel rail and line post are patents of this firm and are used by them exclusively. The pickets are securely calked into the channel rail by means of pneumatic machines of their own design and invention, which by their tremendous force practically compress the pickets and rails into one solid piece. It is safe to predict that the American League Baseball Park has erected a fence that will be as enduring as the fame of the White Sox Ball Club.

CEMETERY NOTES

(Continued from page 40)

Because some of the owners of property are demanding exorbitant prices for the lots wanted by the city of Austin, Tex., for the new cemetery addition, the work is progressing slowly. However, it is expected that the entire tract will have been acquired in a few months and that improvement of it will then go on rapidly. While it was the original intention to purchase and improve six blocks with the \$50,000 bond issue, it is probable that even

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It kills every kind of vegetation with but one application a year and prevents regrowth. One gallon covers 300 square feet. Can be applied at any time; is odorless. Leaves ground clean, dry and hard. Simple: Just add twenty gallons of water to each gallon of Squier's Killer and sprinkle.

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FOR Parks and Cemeteries we offer over 2,000 varieties of ornamental trees and shrubs grown to a quality standard that not only makes them look well, but transplant well.

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Send us list of wants. We are always pleased to quote prices. Catalog and Price List sent on application.

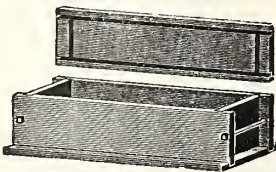
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The photograph we are displaying represents one of our later designs. Aside from the carven figure of a child, little has been attempted in the way of decorative work. There is nothing to detract from the simplicity of the plain white surfaces. It shows you how a small outlay in marble can be made to produce a real memorial.

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more property will be added to the cemetery.

The Noank, R. I., Valley Cemetery Association is planning to secure some adjacent land for an addition to the cemetery. Here is an example of leaving such matters too late.

From Cemetery Reports.

No. 20 brochure, called Lakewood Cemetery Annual, of Lake City, Minn., has again in due course put in its annual appearance. Besides printing the annual report of the annual meeting of the Cemetery Association, with election and financial particulars, the eight-page pamphlet is full of interesting notes pertaining to cemetery work, and it gives a list of perpetual care lot owners and notices of the various anniversaries. It undoubtedly is a useful effort on the part of the cemetery officers, tending to maintain interest and inspire all concerned.

The lot owners of the Greenwood Cemetery, Brooklyn, N. Y., held their annual meeting March 19 and received the report of the trustees for the year 1912. The assets of the cemetery amount to \$5,615,017.47. Its real estate is valued at \$325,085, and it has on hand and on deposit \$105,843.33. In the total of \$5,615,017.47 is included the special care of certain lots, amounting to, with interest, \$1,643,046.16. The receipts from all sources during the year were \$695,726.48, and the disbursements \$395,883.15, leaving a balance of \$194,000 loaned on bonds and mortgages. Included in the disbursements was \$43,357.55 on account of the new chapel which is nearing completion, and the trustees hope to have it completed and furnished for use in May of this year. This chapel will have cost, when completed, about \$250,000. It is a beautiful example of English perpendicular Gothic architecture, inspired in part by Tom Tower at Christ College, Oxford, England.

PERSONAL.

R. D. Boise, Geneseo, Ill., well known among the members of the A. A. C. S., is just recovering from an illness that some of his friends thought would be his last. He is considerably past 80 and as

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Pure and unadulterated.
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It can be readily applied to the soil. Does not make lawns unsightly or have to be raked off. Free from Weeds. "Sheep's Head Brand" is pure sheep droppings mixed with no other manure. Acknowledged Nature's best and richest fertilizer. Send for quantity prices and booklet.

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Grow the kind of evergreens you want, and invite inspection of our stock. Architects laying out plantings calling for especially fine specimens, or owners desiring to increase the attractiveness of their grounds by the addition of notably handsome trees, are invited to correspond with us.

We located here because we found this section especially well adapted to evergreen culture. To produce *real* specimen evergreens, and do it right, requires special knowledge and skill in growing them and we have supplied that through more than 50 years experience.

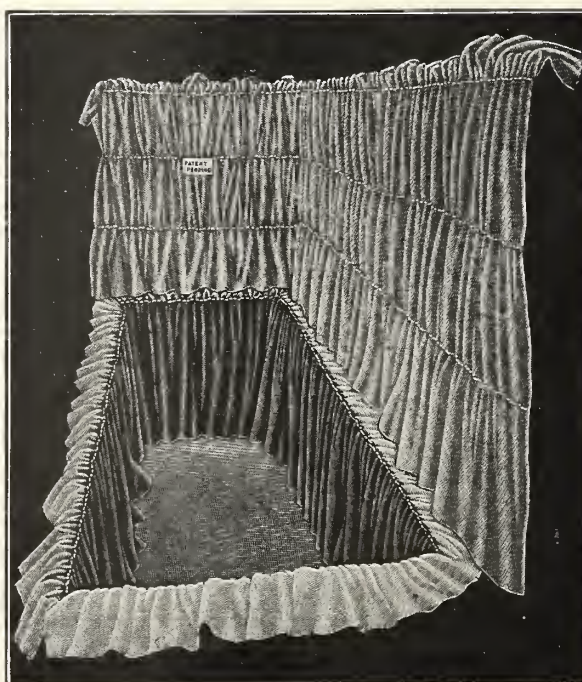
Prospective buyers should call in person to inspect our stock; or we will be glad to supply catalog and particulars by mail, upon request.

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WHITE GLAZED Terra-Cotta GRAVE AND LOT MARKERS



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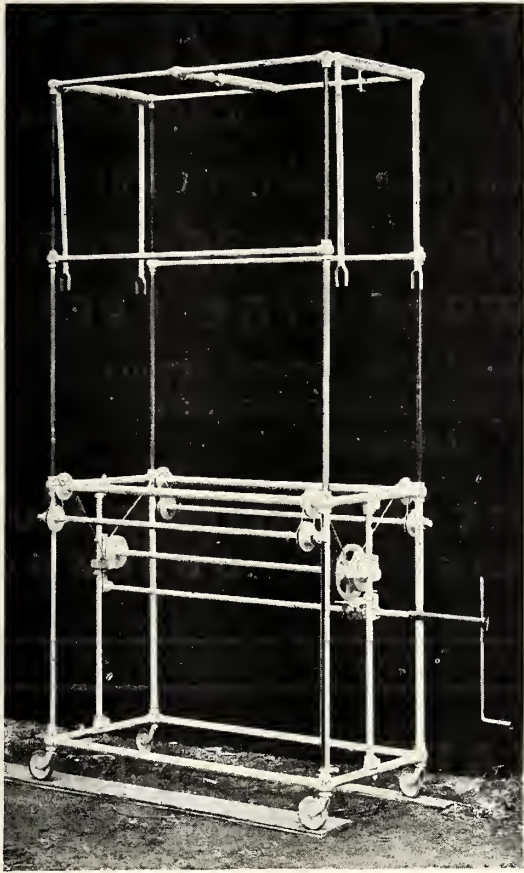
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Simple and Efficient Systems of Records for Cemeteries of all sizes. Ask for prices and sample pages.
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CUT No. 1 shows the Bomgardner Adjustable Private Mausoleum Elevator for placing caskets in 3rd, 4th and 5th crypts; also for private compartments in community mausoleums.

Weighs 150 lbs., and takes up but 30 x 48 inches space on the floor. Is strong enough for any case.

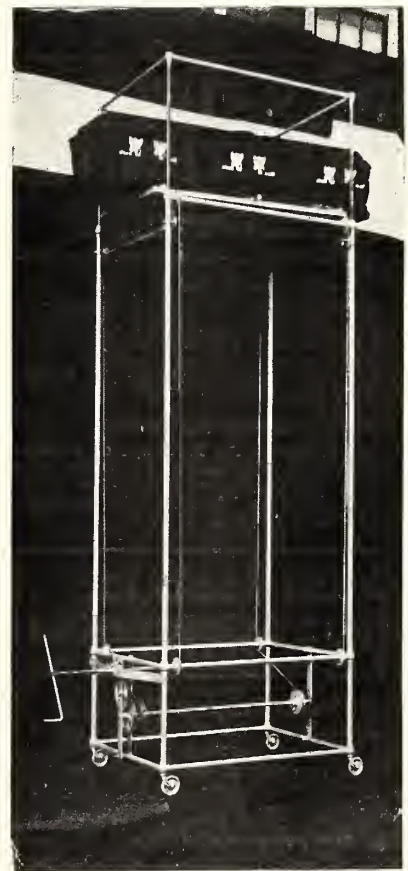
Sent on approval.

CUT No. 2. The Bomgardner Community Mausoleum Elevator. The one shown elevates the casket to the 6th crypt. The casket rests on rolls which are connected by sprocket chain and by turning a crank attached to the center roll, the casket is moved into the crypt very easily. Note the mechanism and sightlessness of the make-up.

Sent, as are our lowering devices, cemetery trucks, mausoleum trucks and cement vault trucks on approval.

WRITE

Bomgardner Mfg. Co.
CLEVELAND, OHIO



deeply interested in his cemetery work as ever.

The residence of Mr. and Mrs. John J. Stephens, in Crown Hill Cemetery, Indianapolis, Ind., was destroyed by fire in February. They suffered some loss by water. Mr. Stephens writes that the Board of Trustees will build a new house during the summer.

The Meriden Cemetery Association, Meriden, Conn., has engaged Arthur A. Shurtleff, a New England landscape gardener, to improve Walnut Grove.

Frederick C. Hopton, four years gardener at Homewood Cemetery, Pittsburgh, a young man of barely 30 years, has been appointed superintendent of Westview Cemetery, a Jewish burial ground on the North Side, Pittsburgh, Pa. The directors intend to modernize the cemetery. Mr. Hopton took charge on April 1.

Superintendent Charles Brandon, who has been with the Green Park Cemetery Association, Portland, Ind., for the past four years and who contributed very largely to the beauty of the grounds, recently resigned to take up other work at Toledo, Ohio. The board of directors selected Merle R. Jack, of Portland, to take his place. He is getting the streets in condition and cleaning up the grounds from the winter's decay. A wealthy citizen, Mr. J. W. Polley, died recently, and his remains are in the public vault at present; as soon as the weather settles his widow expects to build a private mausoleum in Green Park Cemetery.

CLASSIFIED ADVERTISING

10 cents a line each insertion: 6 words to a line; minimum price 50 cents. Copy must reach us by the 1st of the month.

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No. 1. Canadian Unleached Hardwood Ashes, Nature's own Fertilizer for grass. No fertilizer equals my Ashes. Price and freight rates quoted, correspondence solicited. George Stevens, 104 Douro St., Peterboro, Ontario, Canada.

SITUATIONS WANTED.

Situation Wanted—As foreman by a reliable experienced landscape gardener and florist, with 19 years experience in cemetery and city parks. Address: E. Walther, 1650 Amsterdam Ave., New York.

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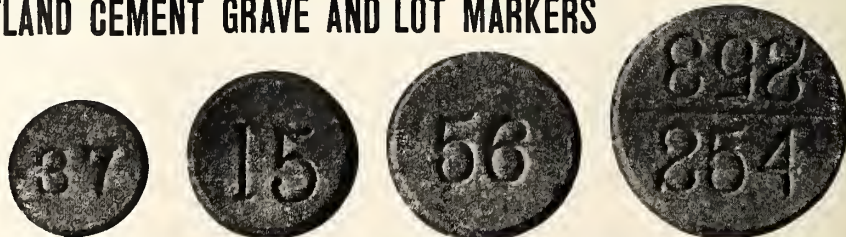
		Per 100	Per 1000
Beauty Poitevine	3½ ft.	\$ 4.00	\$30.00.....Dark Crimson
Chas. Henderson	4 ft.	4.00	30.00.....Bright Crimson
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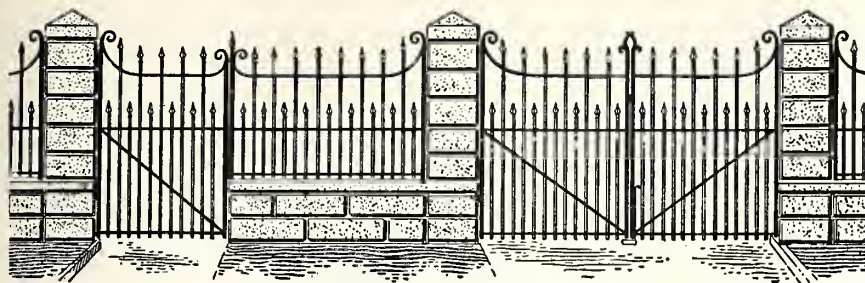
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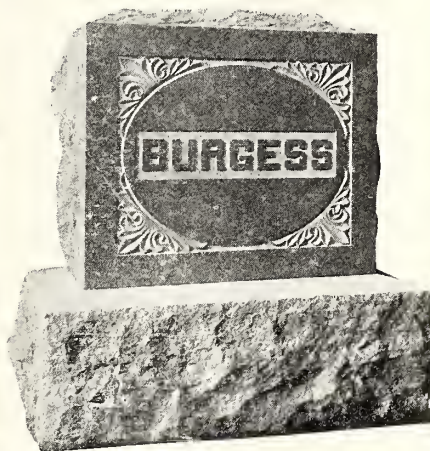
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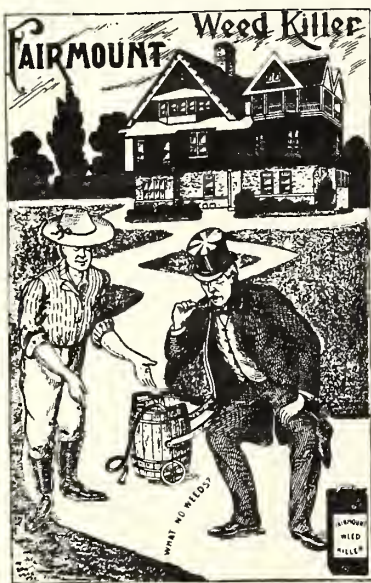
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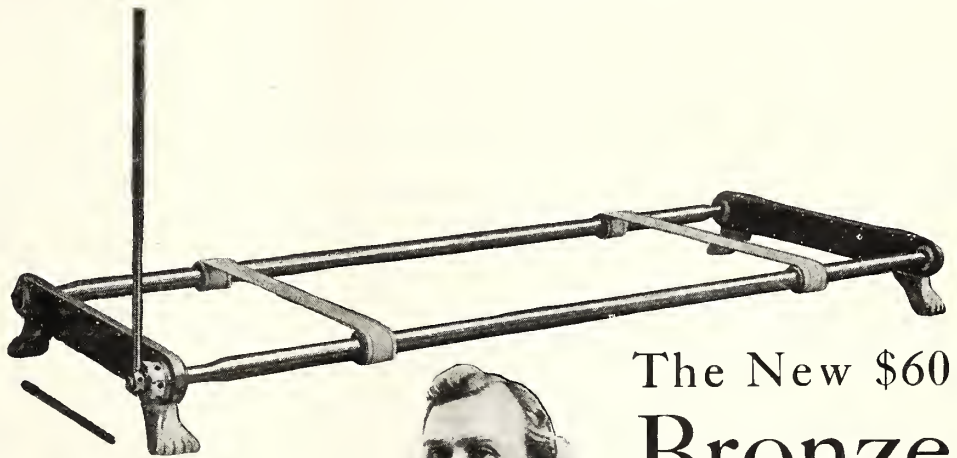
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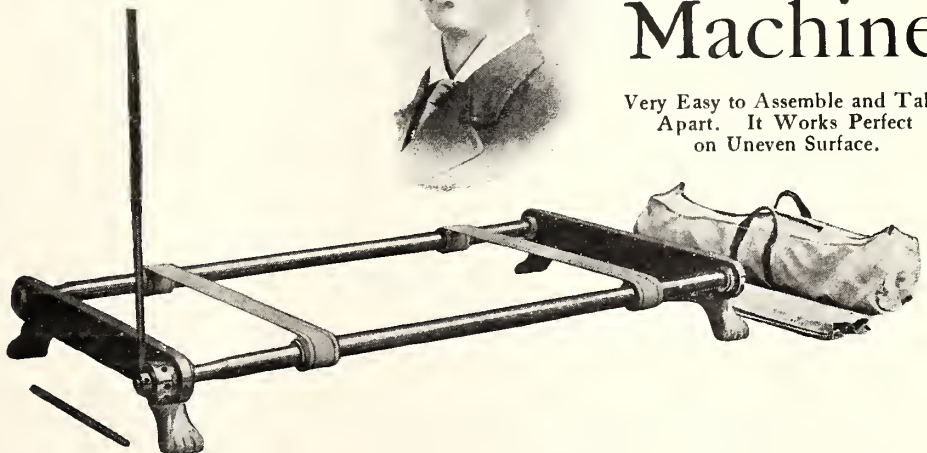
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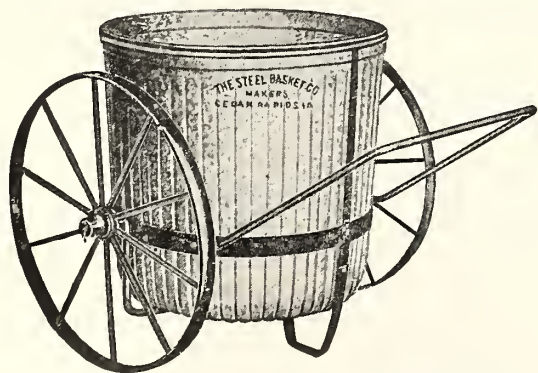
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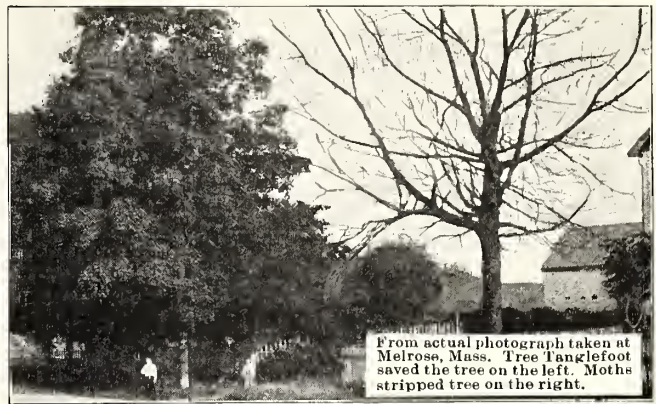
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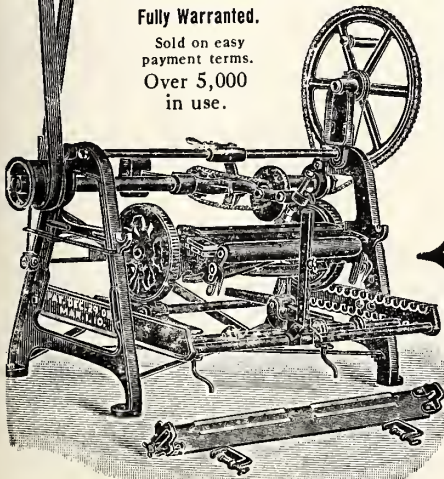
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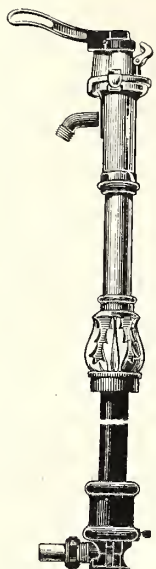
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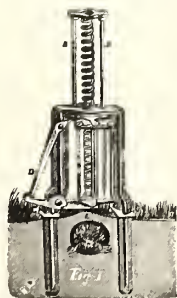
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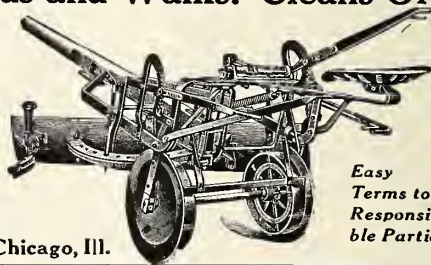
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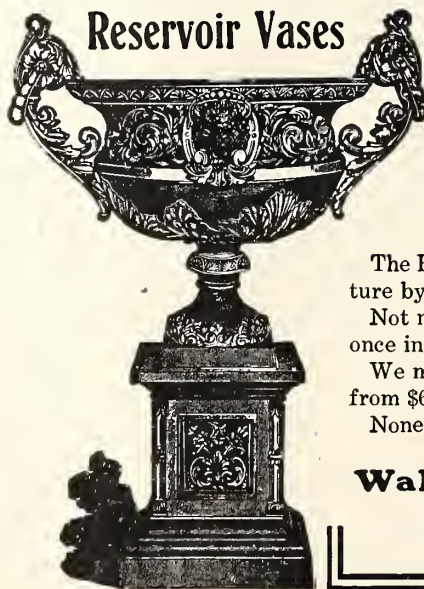
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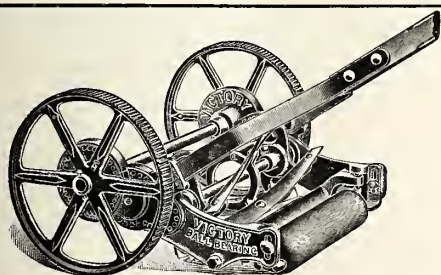
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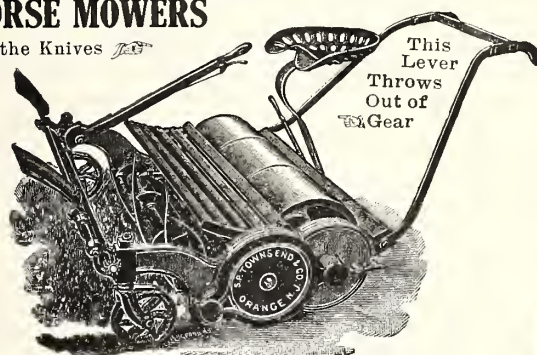
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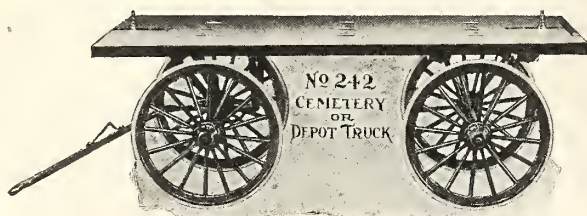
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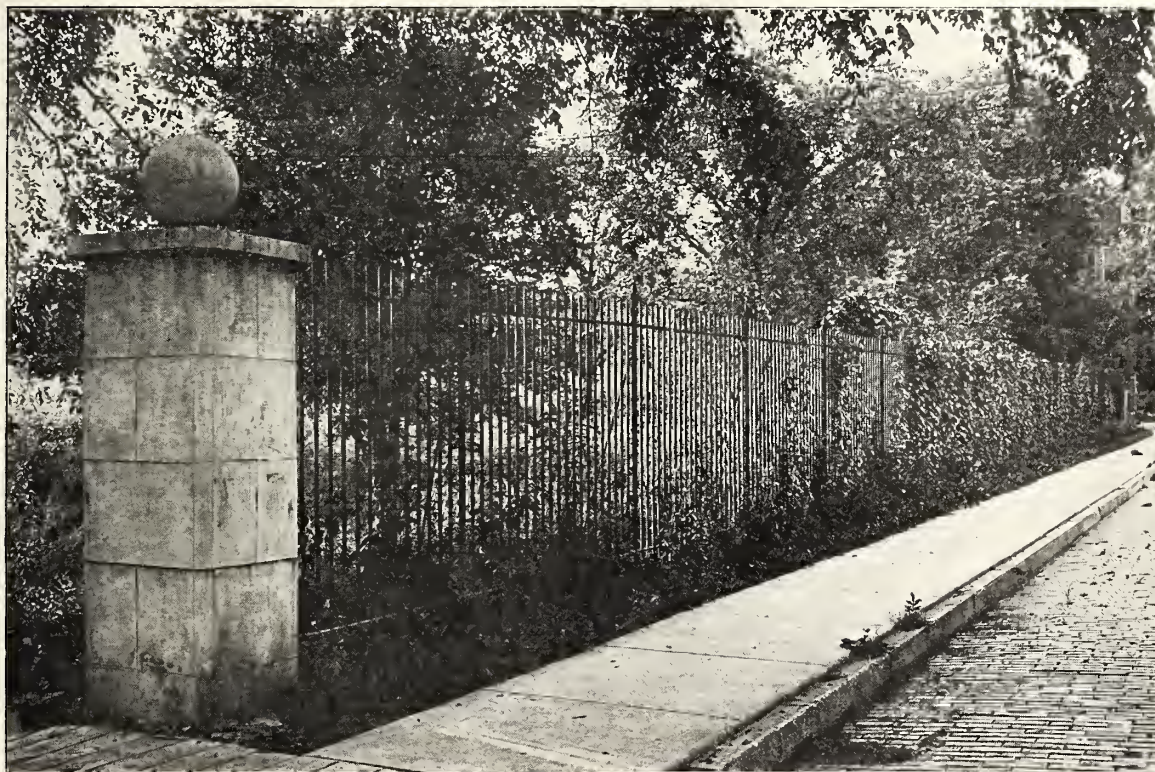
Vol. XXIII.,

No. 3

MAY, 1913

SPECIAL FEATURES IN THIS ISSUE

Distribution of Cost of Kansas City Parks—Park Maintenance—
Spraying Developments in Massachusetts—Squirrels in Parks—
Anti-Cemetery Legislation—Relief Map of Cemetery Grounds.



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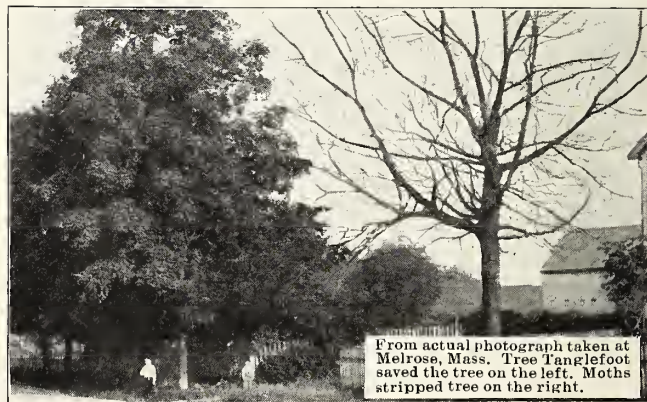
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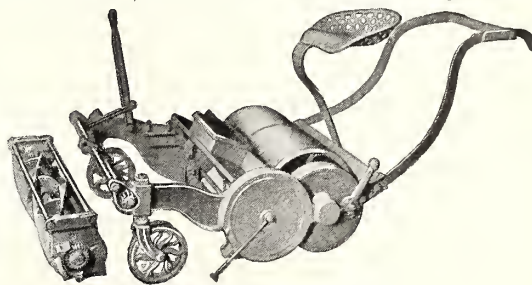
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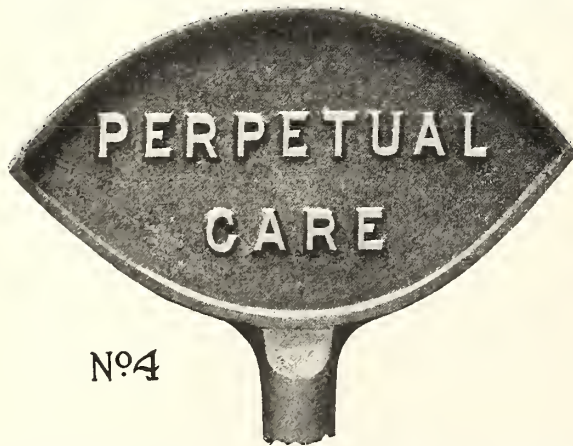
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PARK AND CEMETERY AND LANDSCAPE GARDENING

VOL. XXIII

MAY, 1913

No. 3

EDITORIAL

Roads and Car Lines in the Parks

The question of public highways and street car lines in the parks is many-sided and far-reaching. Only where there is the most urgent need should car lines or public roads be allowed in parks, and yet they should be so constructed as to give easy public access to the most interesting features of the scenic parks, so that the great mass of the people who do not use automobiles may enjoy them with the minimum expenditure of time and money. The newer ideals of useful park service are letting many things into the parks that were formerly forbidden, and our ideas on park transportation may perhaps come in for some revision in the future. In Cedar Rapids, Ellis Park was given to the city with the proviso that it be forever used for park purposes, and the court in that city has just enjoined the city from opening a highway through the park. The decree forbids the city from using any portion of Ellis Park, deeded for park purposes only, for a public highway or thoroughfare, or in any other way than exclusively for park purposes with only the driveways and walks generally incident to such use for pleasure and enjoyment as a park. On the other hand, the City Planning Commission of Pitts-

burgh has recommended that a car line be built through Schenley Park, and the following quotation from the *Pittsburgh Sun*, discussing the matter, has much of reason in it:

"The Sun has no plan of its own for a street car line in Schenley park, but the one recommended by the City Planning commission to council is by far the most practical yet mentioned. It believes with the latest economic survey of the city that this, our largest park, should be made to yield greater social returns, that it should touch and recreate more of the people. This suggestion of a car line in Schenley park is not made without regard for the beauty of the park, but with regard for it, to make it possible for more persons to see it and to enjoy it. This attitude has been taken by practically all who have looked into our park system. Street car facilities to bring the parks and their pleasures to the tired mothers and little children have been recommended by all. Public parks should not be maintained merely as preserves for the rich, who in automobiles may wind their way among its beauties or reach its choicest recreation spots. The interests of the great majority who do not have automobiles must be considered. The scheme of the City Planning commission, running through the park, would take the people right to where they wished to alight. Its course, with beautiful scenery on all sides, would make riding over it a rare pleasure in itself. A line encircling the park would serve the need but little better than the present system—the crowds would still have to walk from all sides to the center—and the cost of such a belt would be so far beyond that of the other proposition as to recommend the latter at once as the more feasible."

National Progress in City Planning

The fifth National Conference on City Planning, held in Chicago May 5, 6 and 7, demonstrated the growing importance of scientific planning and development, and the increasingly practical aspect of the city planning studies. The addresses and studies presented constitute the most valuable data on this subject yet developed, and the proceedings of this annual conference will make a most valuable addition to city planning literature. The future of city planning was well set forth in the opening address of Frederick Law Olmsted in these words: "Looking forward fifty years, let us imagine the status of city planning in a fairly well conducted American city. There will be some official body

charged with the prime responsibility for the custody, interpretation and amendment of the city plan. Whether the official head is one man or a group of men, there will be a staff of assistants and the whole body will be known as the city plan office." "One of the most interesting features of the conference was the report of the Committee on City Planning Study, which was accompanied by plans of a model section of 491 acres to be built within the limits of a city of 500,000 inhabitants, but to be four miles from the center of the municipality. Seven landscape architects participated. It is said to be the first outline of a model city which has been figured down to actual cost of buildings.

Anti-Cemetery Legislation

The promoters who have been responsible for some financial juggling with profit-making cemeteries in a number of cases may doubtless be held responsible for the attempts at anti-cemetery legislation, of which some news is given on another page. The energetic financier who compares the price of a cemetery lot with the price of a piece of adjoining cow pasture or corn field, and then without further figuring proceeds to generalize on the "immense profits" in the cemetery business, has made quite a large section of the public, including some of our ever-innocent and gullible legislators, believe him. Consequently the New York Legislature is trying to tax all cemetery land that is not actually occupied by graves. As cemeteries have to buy land many years in advance of their needs, and hold large areas vacant for future use, such a law as this might easily bankrupt many cemeteries that can now hardly make both ends meet. In Massachusetts

the ridiculous injustice of taxing cemetery perpetual care funds has been done away with by a bill exempting such funds from taxation, but the idea that the cemetery is a great profit-making octopus is still quite prevalent with the careless public. In Pennsylvania an effort is being made to prevent cemeteries from forbidding outsiders to work on the lots, and there is reported to be considerable sentiment in favor of the measure. The basic idea behind all of these attempts is the fundamental misapprehension that cemeteries are earning vast sums of money. The well-managed cemetery conducted on business principles should be a self-supporting institution, but the greater share of its profits is used for the betterment of its grounds. The lot owner and the public both benefit in better cemeteries by whatever profit the cemetery makes.

The Squirrels Again

We have again before us the familiar subject of squirrels in the parks. On another page several correspondents try and condemn the squirrels, and several acquit them. The case is strongly presented in communications from both sides, and the superintendent who is confronted with the squirrel problem will find here

sufficient evidence to enable him to make a decision for himself. The squirrels, at least certain types of them, do certain damage in the parks. Is this damage sufficient to warrant their extermination? On the other hand, they are a great attraction to the park visitors and serve certain useful purposes. Here is a chance to weigh the evidence carefully for and against them.

PARKS AND PARK WORK

LAKE AND BOULEVARD MAKING IN SEATTLE

*By Roland Cotterill, Secretary.
Seattle Park Commission.*



GREEN LAKE PARK PROJECT
Showing Dike Construction 1912



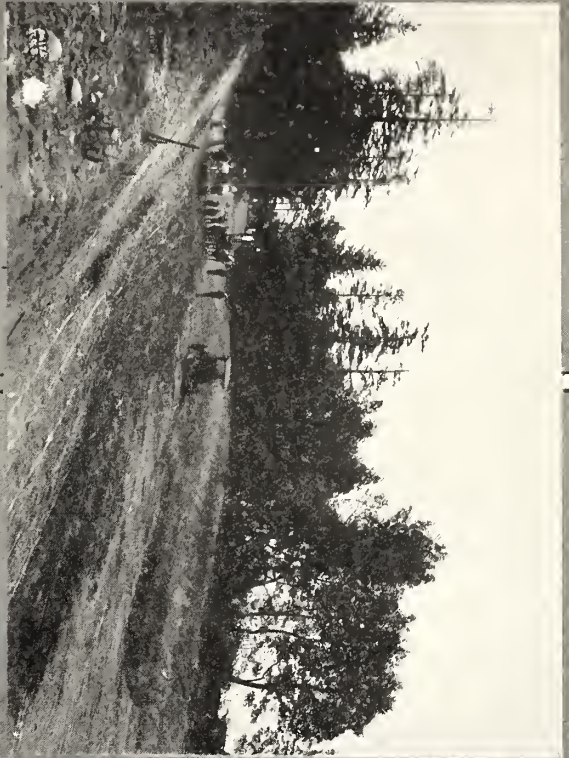
As set forth in the 1912 annual report of the Board of Park Commissioners of Seattle, Washington, this young city of the Pacific Northwest had a record breaking year, practically one million dollars being expended on improvement work done by the park department of that city during the last calendar year.

The largest single project was the improvement of Green Lake, a body of water nearly four hundred acres in area with about three miles of shore line, situated in a populous residence district of the city. The entire shore frontage of the lake was acquired several years ago by the city for park purposes, but this only afforded a very narrow rim of land between the shore line and a traffic street with car line upon it, which belted the lake, practically paralleling the shore line.

In order to provide park area, the lake was lowered about seven feet by a pipe line to a trunk sewer, thus uncovering valuable areas on the shallow sections of the lake. On the deeper sections a dike was constructed along the new shore line fixed by the plan, by means of steam shovel, earth fill being secured from adjacent upland and transported by cars over a pile trestle constructed on the dike line and the fill made in this way. By this method nearly two miles of dike was constructed, requiring 260,000 cubic yards of earth. The dike being completed, a suction dredger was installed and is now engaged in pumping mud from the bed of the lake and back filling over the dike. This is a very economical method of filling, costing about five cents per cubic yard, whereas the fill secured from the upland for the dike cost 38 cents per cubic yard.

According to estimates about 900,000 yards will be required to make the required fill between the dike and the shore line, and as the dredger is handling about 1,000 yards per day, this work will be in progress for nearly three years more.

In the end, however, approximately one hundred acres of park land will be created at a cost of about \$1,500.00 per acre. The lake will be a lake within a park and a boulevard will skirt the outer margin of



MAGNOLIA BOULEVARD
Showing Nature of Clearing and Grading



VOLUNTEER PARK CONSERVATORY
Erected by Department Employees 1914



the tract, paralleling the traffic street. Inasmuch as the largest park of the system, Woodland Park, fronts on one end of the lake the two features combined will make a unique and pleasing combination.

Next in importance to the Green Lake project, boulevard extensions received considerable attention, a scenic drive known as Magnolia boulevard, extending from the north water front district of the city along the crest of a high bluff following the shore line and overlooking the entrance to the harbor, for a distance of three miles to Fort Lawton, the military post which guards the entrance to Seattle harbor, being cleared and graded and one-third of the distance was metalled with macadam Tarvia. On another section of the boulevard system leading to Green Lake, known as Ravenna boulevard, a mile of graded driveway was surfaced 32 feet in width with a type of pavement known as Dolarway, being a six-inch concrete base with a bitumen wearing surface. This pavement cost \$1.18 per square yard, and bids fair to be an economical and serviceable parkway pavement. On Queen Anne boulevard, a division three miles in length, following the crest line of a high hill

which is an aristocratic residence section of the city, two miles of grading was accomplished and a half mile of asphalt pavement laid.

A new boulevard extension in the south section of the city known as Jefferson boulevard, was graded for a distance of one mile and a half mile of trestle was constructed as an extension to the Lake Washington boulevard, being for temporary use pending the lowering of the lake, which will be brought about within a year or two, by the completion of a ship canal now being constructed between Puget Sound and Lake Washington, which will give Seattle both fresh and salt water harbors with approximately eighty miles of shore line.

Approximately one hundred acres of wooded land in Jefferson Park was cleared and grubbed for a municipal golf course, and three new playground sites were graded, aggregating twenty-one acres in area. A concrete arch bridge was constructed by the department forces, on the boulevard system, replacing a wooden structure which had outlived its usefulness.

In building construction the one piece of work which the department takes particular pride, was the erection of a conservatory in Volunteer Park, the design and structural materials being from Hitchings & Co. of Elizabeth, New Jersey. The department forces undertook the erection of the structure and a saving in excess of \$5,000.00 was made under the bid of the designing firm for the structure erected complete.

Summing up the improvement record for Seattle during 1912, we find that about 121 acres of land was cleared, grubbed and graded, seven miles of boulevard was graded, two miles was paved, two miles of lake front dike was put in place and a dredging plant installed, substantial and attractive conservatory erected and two practical recreation buildings constructed, certainly a year's work which the park department of any city might well feel proud of, yet quite in line with the progressive spirit of Seattle, the young metropolis of the great Pacific Northwest.

Seattle has recently built some remarkably interesting and efficient types of recreation buildings that will be described in the next issue of PARK AND CEMETERY.

PROGRESSIVE YEAR OF PARK WORK IN PORTLAND

The Park Board of Portland, Ore., has just published a comprehensive report covering the past five years of its work, and marking the commencement of a new and advanced policy in the park department. It is the first one of its kind ever printed in this city. In presenting the report to the people, the mayor and members of the Park Board sign a statement that henceforth an annual report will be published and distributed to the public.

The report shows in detail every expenditure of the park department, the total

park acreage, the annual cost of maintenance and the plans for the future development of the park, playground and boulevard system. It is profusely illustrated and contains a resume of the activities of the park department, explanatory tables, charts, plans, financial statements, and, in short, all the information which is sought, more or less constantly, by citizens and others for statistical and sociological purposes.

It is the hope of the mayor and board, by adopting this new policy of publicity,

to convince voters of the city that the best interests of all demand the passage of a charter amendment providing for another park bond issue of \$2,000,000. To this end the board has addressed a special communication in the body of the report to the people of Portland.

The report is one of the most comprehensive, complete and systematic records of park operations, statistics and data issued by any city. It is a handsomely printed and profusely illustrated book, giving not only plans and illustrations of nearly all the important parks and structures in the system, but comparative maps and statistical data about other cities. Mayor A. G. Rushlight is chairman of the Park Board and Emil T. Mische superintendent of parks.

Despite the temporary set-back received by the park department by the rejection of its bond issue, the work of beautifying the parks and children's playgrounds has been carried on without interruption the past year. Extensive plans have been made for future operations, and development work has progressed at a rate conformable with the funds available for those purposes.

Improvements in the form of comfort stations, band stands, tree-planting, grading, lighting, etc., have been made, and the equipment of play places for the children, and the planning of new ones have been well advanced by Superintendent Mische.



FERNDAL GULCH IN WASHINGTON PARK, PORTLAND, ORE.

Construction of the community recreation building at Peninsula Park is now under way. The contract calls for the completion of this building early in the coming summer. With its completion there will be initiated in this city an all-the-year-'round playtime for the young folks. This structure is being erected at a cost of \$30,000, which the Board believes to be money well spent.

Difficulty was encountered in the early part of the year in acquiring the necessary property for rights of way for extension of the Terwilliger Parkway. Work is, however, progressing rapidly in developing what is destined to be one of the most beautiful scenic driveways in the country. A more detailed description of the work of constructing this boulevard and of the interesting types of public comfort stations built by the park board will be given in our next issue.

With the growth of the system the re-

quirements in organization of forces proceed. The general trend toward which by modern organizers. The organization of a modern park board is well represented

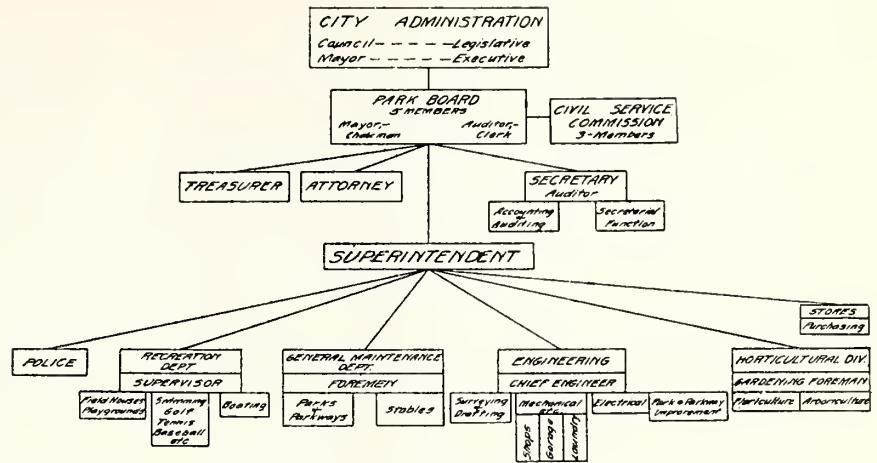


CHART OF PORTLAND PARK ORGANIZATION.

this is being developed and in many instances now in operation is that approved

by the accompanying chart from the Portland report.

ADVANCING PARK SERVICE IN VANCOUVER

The Park Board of Vancouver, British Columbia, has made substantial advance in playground and bathing beach construction the past year, and the annual report recently issued tells of the addition of 35 acres of land for park sites, embracing thirteen city blocks, at a cost of \$343,529.16. This sum is far in excess of anything heretofore expended for a like purpose in any one year. For improvements and general maintenance the expenditure dur-

ing 1912 aggregated \$136,331.89, which also constitutes a record.

The most extensive work was carried out in Stanley Park, involving an outlay of \$66,137.90. Of this amount upwards of \$32,000 was expended for widening and macadamizing the main driveway from Prospect Point to the seal pond. Except for that portion from the seal pond to the entrance, which it was deemed wise not

to improve in view of the building of the new causeway, the whole of the encircling seven-mile driveway is macadamized and is in good shape to stand every class of traffic to which it will be subjected.

In the matter of free bathing great strides were made during the year. The increasing crowds at Second Beach had become so large as to render utterly in-



"THE SEVEN SISTERS," STANLEY PARK, VANCOUVER.



ENGLISH BAY BATHING BEACH, VANCOUVER, B. C.

adequate the accommodation available for bathers. There is now a handsome building erected on the western shore of the

beach, at a cost of \$13,687, which included furnishing and the laying out of the surroundings.

W. S. Rawlings is secretary of the Board, and A. Balmer, superintendent of parks.

DISTRIBUTION OF KANSAS CITY PARK COSTS

An Address Before the City Planning Conference, Held at Chicago, May 5, 6 and 7, By George E. Kessler, Landscape Architect, of St. Louis.

Underlying a description of the accomplishment of the park and boulevard development in Kansas City, Mo., is history covering long and serious struggles to secure a worthy accomplishment. This is true of any genuine result in any community, and merely illustrates the need of continuous control for a period sufficient in length of time to break through the crust of public apathy and both public and private avarice. As a rule people of every community show extreme willingness to secure fine public improvements of every character, but always at some one else's expense. The attitude toward these developments is expressed in the phrase, "Let the city do it," the average tax payer forgetting that the individual is the city, and that all the concurrent public necessities should be carried forward in a well balanced scheme of development and permitting none of the important elements of municipal improvement to lag behind.

The scheme of government in American cities does not, however, encourage uniform progress in all the several important needs of a community. The natural result is a condition which the people working on so-called city plans and those interested in these city planning conferences must face and alleviate.

As cities cannot be built without the lands upon which to place their necessary structures and the public thoroughfares giving access to all of these, so none of the public improvements can be made without ample means to accomplish these needs. In every community there exists a feeling of resistance against enforced contributions to public good in the form of taxation, and therefore, naturally a low limit, as a rule, of powers of taxation for public purposes is maintained. The extraordinary growth of urban population has, therefore, increased the demands upon current revenues in all municipalities usually far beyond the ordinary sources of revenue. The ordinary expenditure of the municipal government for absolutely essential functions in the safeguarding of life and property, which leave no permanent record in existence, almost invariably absorb all general annual funds. The newer communities in the United States have, therefore, sought a further source of revenue for the establishment and maintenance of supposedly permanent improvements, such as betterment of streets, a great portion of drainage work, and to some extent the purchase and improvement of parks and boulevards. The older communities of the country are still relying largely upon annual revenues

or upon the issue of bonds based upon municipal credit, of course general taxation, not special.

It will doubtless be interesting to state the land tax method as applied in Kansas City, inclusive of the establishment and maintenance of the park system there.

All lands are, of course, assessable for general taxation for state, city and school purposes, these several items of general tax supplying the means of conducting the several general governments and providing for the ordinary functions of each. Out of general revenues only very little of street improvement is made, and out of general revenue or bond issues, based on general taxation, are constructed the principle trunk line sewers. All else is done by means of special assessment against benefited land. In the case of special assessment for particular improvements, these assessments lie against the lands only, in no case taking the improvements thereon into account. When a street or any public highway, inclusive of the boulevards, is to be established, the administrative boards and the legislative body adopt the necessary resolutions and ordinances and inasmuch as general funds are rarely available for this purpose, proceed in the local civil courts

to expropriate or condemn the land necessary to establish, widen or extend these highways. The cost of the lands entailed in such procedure is then, in the same court, by the same commissioners establishing the value of the lands taken, assessed against the private lands within a previously prescribed contiguous or abutting benefit district. In the case of streets, usually abutting lands; in the case of boulevards custom has established the frontage upon the adjoining parallel street on each side as properly within a district specifically benefited by the establishment of such highways. Later, after the properties have been acquired, sometimes at the time of acquisition, the grades upon which these highways are to be built are established, and should there be violent changes of ground surface, thereby producing possible injury to the abutting private property, opportunity is given to claim damages for this element, and the cost thereof is assessed in the form of special land assessment against the properties in the benefited district.

Subsequent to the disposition of the question of damages due to the street grade or changes in ground surface thereon, the highway is graded to its established grade and the cost of this work assessed in proportion to the value of the property assessed and against the lands forming the normal frontage on the highway so improved. After the street has been brought to the proper planes in accordance with the established grades, and all subsequent to the proper legislation by both the administrative and legislative bodies, the city proceeds to improve these highways by first establishing the necessary drains, discharging these into the established sewer system or creating new sewer districts. The cost of such drainage is assessed against the lands within the area to be drained, on the basis of cost in proportion to its area.

The city then further proceeds to build the curbs, the street pavements, the sidewalk pavements, and assess all of these elements against the abutting properties in proportion to the frontage.

The city may, but does not as a rule, further assess the abutting properties with the cost of establishing the lawns on the sidewalk spaces, but does assess the cost of shade tree planting and care upon the abutting property in the case of the streets. In the case of the boulevards, the Park Commission, out of its funds, provides for the cost of tree planting and the lawns on the sidewalk spaces.

The city does not assess for the establishment of water mains, and the installation of lighting equipment is an incident to the general contract for lighting, paid for out of the general revenue.

The park and boulevard system is administered by a Board of Park Commis-

sioners, one of several administrative boards, and charged with the particular duty of creating and maintaining this system. It has the exclusive power of selection, no powers of legislation, but exclusive powers of administration.

Beginning twenty years ago to plan, under the writer's direction, for a comprehensive scheme of this class of improvement, actual acquisitions were not accomplished until approximately 1896. Since that time to the middle of April, 1913, the close of the fiscal year, the following general expenditures have been made on this system:

SPECIAL ASSESSMENT.

Acquisition by condemnation—	
(All purchases having been made through exercise of the power of eminent domain).....	\$5,115,187
Boulevard improvement by tax bills....	1,412,473
Boulevard grading damages	24,723
General park and boulevard maintenance.....	1,863,906
Special boulevard maintenance	78,730
Miscellaneous collections—	
(Accruing through special assessments)	120,000
	<hr/> \$ 9,615,019

GENERAL TAXATION.

Bond issue	\$ 500,000
Apportionments from annual municipal revenue	1,353,000
Vehicle tax	147,874
Miscellaneous collections, accruing through general taxation	64,009
	<hr/> \$ 2,064,883
Aggregating	\$11,679,902
Special assessment	82.3%
General tax	17.7%
	<hr/> 100%

To understand perhaps more clearly the general scheme of administration and financing, it should be understood that Kansas City, Missouri, now a community of some 275,000 people, is east of the line dividing Missouri from Kansas. In Kansas City on the Kansas side, known as Kansas City, Kansas, there is a population of some 100,000 in addition. Kansas City, Missouri, and the City of St. Louis are the two constitutional cities of the state, each having its own charter and each having the exclusive power of charter amendment with reference to local affairs and the administration of local laws. Therefore, the city of Kansas City, Mis-

souri, is alone responsible for progress in local improvements, and through its consent alone, has the successful work there been accomplished. Among other administrative boards, the Board of Park Commissioners has exclusive charge of its park and boulevard operations.

Like most other cities, the park department found itself faced with the question of waiting for years, perhaps never accomplishing anything, if it relied entirely upon the doling out of the current annual revenues or upon possible bond issues, which the public in that city does not generally favor. In this instance the park department had no hope of aid from current revenue and the debt making power had reached its limit for the purchase of water works. There remained only reliance upon private generosity or special land assessment. In applying, therefore, the principle of benefit assessments for the creation, improvement and maintenance of this park system, there were established certain assessment districts used as unit areas of taxation, for this purpose, and within each of which the private lands were directly assessed, presumably in proportion to the benefits derived by them from the purchase of land required for the several public improvements.

If a park or parkway, defining the latter as a parked highway, was sought to be purchased, then, after the proper legislation had been adopted, the circuit courts and commissioners under the judges of the local civil courts, hearing claims for values for the properties sought to be taken, and also claims usually in resistance of assessment to pay for these properties, found the values in detail and in aggregate of the properties taken under such procedure, and distributed, in accordance with their judgment, the cost of this acquisition against the private lands within the park district in which the park was to be located. Such assessments become liens against the private lands, subject to sale in the event of failure to pay at given times. Where the assessments were likely to be large, opportunity was made to pay the individual assessments in installment periods, usually of twenty years. At no time has the community at large been required to pay any portion of these purchase costs.

None of this splendid accomplishment might have been done had not provision been made in the very beginning for the collection of the special assessments in installments in the park districts for purchase. These installments have ranged from ten to twenty years, generally the latter. In order that there would be no necessity for waiting until the end of the twenty year term to obtain the funds necessary to pay for the properties taken, provision was made for the issue and sale of securities known as Park Fund Certi-

ificates, which made it possible to obtain immediate funds and collect and disburse installment payments within the installment periods. These securities immediately found favor with large investors, and have always found prompt and ready sale, always at a slight premium. The importance of this latter condition cannot be overstated, inasmuch as it gives those specially assessed opportunity to either pay in full without using installment periods, or taking the easier method to those not having ready money and paying slowly and gradually.

In the case of the boulevards there was practically the same procedure, and while under a different administrative board the streets were also established in the same manner, except that in the latter case no installment payment periods were permitted.

For the purpose of improving and maintaining these parks and boulevards, and in the absence of sufficient current revenue appropriated by the legislative body, there was established a power to assess annually within the limits of each park district and for the sole benefit of that park district every parcel of private land within that district, at the same time and to the same effect as the same lands were charged with the annual ordinary taxation, but in addition to and beyond the constitutional limit for general purposes. This created in each park district an annual fund for improving and maintaining the parks and boulevards within those districts. The real benefit of the division of the city into permanently established park districts is to create within those districts the annual revenue above described. Such park district maintenance

funds are available for the improvement and maintenance of all the properties within their respective districts under the jurisdiction of the Board of Park Commissioners.

It was found desirable, in addition to the district maintenance funds, to assess annually, also in the form of special assessment, a low maximum charge against the abutting private properties upon boulevards and parkways for the exclusive purpose of maintenance of work upon the boulevards or parkways along which these assessments were made. Inasmuch as a low limit was finally placed upon the powers of the city to make the annual maintenance levies, the park department was given, for the benefit of its park districts, all of the vehicle licenses collected by the city. This in turn is apportioned in accordance with the annual revenues or the established valuation of the lands within the several districts.

One difficulty of the annual park district maintenance levy is that the actual revenue then depends upon the assessed valuation of the lands within these districts. In Kansas City this is approximately fifty per cent of the actual value of the properties. The older park districts naturally contain the high valued business areas, and therefore, obtain ample revenues for improvement and maintenance within their limits. The outlying and intermediate districts, having comparatively low values, obtain insufficient funds to properly improve and maintain the lands and the highways within their limits. Therefore, there must each year be obtained from current general revenues a sufficient apportionment to the park department for the expendi-

tures necessary in these districts beyond their local district revenues. This becomes particularly true of the large outlying park, the entire cost of improvement and maintenance of which must necessarily be borne out of the municipality's current revenues.

In effect this has placed the park department in Kansas City in a semi-independent condition with reference to its funds, and has made it possible to accomplish results that would have been entirely out of the question under any other financial system in that city.

In practice this entire procedure is an amplification of the theory of single land tax. It certainly was not originated as a matter of choice but as a matter of necessity, and inasmuch as no properties have been acquired under any other system, the tax paying public finally acquiesced, and is constantly urging further and even more extensive development in order that the entire city may obtain commensurate benefits through improvement in every section. While it undoubtedly has become a serious burden upon the private lands of the entire community, yet these burdens have been equitably distributed, and since all lands contribute there has been no reasonable objection. Its distinctive advantage in that city has been a resultant stability of land values reaching very far beyond the values for residential purposes alone, and has very strongly tended toward proper segregation of the several sections of the city for these several uses in their distribution for industrial, commercial and residential use, and made possible what otherwise would not have been accomplished.

OFFICIAL COMMUNICATIONS

JAMES B. SHEA, Boston, Mass., President



AND CONTRIBUTIONS

J. J. LEVISON, Brooklyn, N.Y., Sec.-Treas.

THE ASSOCIATION QUESTION BOX

I am in need of a capable man to take charge of the Zoo which we have here; can any of the members place me in touch with such a man or do you know where a capable man can be secured? Anything

you can do to assist me will be greatly appreciated.

CHARLES A. WHITTET,

Virginia, Minn.

Supt. of Parks.

EFFICIENCY IN PARK MAINTENANCE

The essentials which make up a standard of efficient park maintenance are those which would be prompted by proper regard for principles of honesty, cleanliness, beauty and usefulness. The city which possesses a well-maintained park is most fortunate. Many of our

cities, which pride themselves upon their rank among first-class American cities, are ever ready to boast of their acreage in so-called parks; but pride in mere expanse of land does not constitute a standard of park maintenance worthy of such a city, and acquisition of park land

should be limited by the amount of revenue available to keep the park up to a fixed standard. It is far better for the community to own one park well kept than half a dozen neglected ones.

Impractical or political park boards, either through neglect or a foolish desire to "do things," often carry park maintenance to such an extreme that we may well apply the term "over-maintenance" to their labors. An active political park board—and how many cities are free from them—is often left undisturbed, but commended because of its great activity, whether good or bad; for the average citizen fails to see that this activity is a mask behind which hides the fact that many unnecessary men are being employed, that a little

concentration of energy and some reliable park accountants would accomplish far more efficient service. However, waste of resources through the dishonesty of the spoils system is beyond the scope of this paper. We are more concerned with its effects upon park maintenance. It often prevents, through its dissipation of funds, needed enlargements of park areas, and brings about real defacements of already existing parks. Men must be employed, and if there is nothing else for them to do, they can trim trees and shrubbery; in consequence we have glaring inconsistencies, a naturalistic park plantation in the midst of clipped and brushed surroundings, and other introductions of man's handicraft where it is out of place.

More harm than good is done by knives and the saw in many of our parks, for the distortion of shrubbery groups, and the tendency to trim our trees is appalling. Each tree and shrub has a character of its own, if permitted to develop, and this applies as well to groups as to the individual. They are planted in their particular places to develop their own characteristics, and in this way make an impression upon the landscape. Shrubby groups or borders that might have filled one's heart with joy, and one's soul with poetry, have often lost all their charm by having been trimmed in this most brutal manner. Trees naturally of beautiful forms, after suffering these changes resemble the cripple with arms amputated. Nature knows best how to mend her own ways, and too much interference results in destroying beauty, character and form. These costly activities add prestige to the park board, but they often give the parks' real benefactors a false idea of the art of gardening. It is within the power, not to say the duties of the park directors, to limit activities resulting in such a false standard of maintenance.

The emphasis laid upon the idea of "over-maintenance" might seem to excuse untidiness in a park; but this is not the case. Too much importance can not be placed upon the necessity of cleanliness in the park. No matter how beautiful the park may be otherwise, dirt allowed to accumulate destroys its good qualities. Well kept roads and paths are one of the first requirements of a good park system. This means not only a clean and smooth road surface, but 'crisp, well kept edges as well. A clean-cut grass edge pleases the eye immediately. Whether the park meadow itself should be weekly cut, or be permitted to grow into hay, depends upon the character of the park as much as upon the usefulness of the meadow to the public. A standard of maintenance applied to the artificial city park may

differ in degree from that of the rural, country park, but this difference in standard is due to the difference in the type of park. In rural parks the unknown meadow lends more charm and real beauty to its surroundings than a clipped lawn. What is more beautiful than the meadow grasses waving gently in the breeze or the hay-stacks on the meadow later on? Or is there anything to compare with the clover meadow in bloom, the bees humming about the sweet-scented blossoms? Yet obviously this rural picture must have rural surroundings or it is out of place; a park set in a poor frame creates the same impression and suffers the same loss in good effect that a picture does under similar circumstances.

Where the lawn is kept closely clipped, a few practical suggestions might not be amiss. Frequent cutting saves raking and strengthens the lawn, although close cutting during the dry and hot weather should be avoided. In such sections of the country where the precipitation during the summer months is not sufficient to maintain the grass in a growing state, artificial watering becomes necessary, and when such is the case night watering is far more beneficial than sprinkling in the hot sun. A burnt lawn has no beauty, neither is it useful to the park visitor, for it is unclean and becomes a nuisance. A lawn full of weeds has no right to the name, and the best preventive against weeds is to have the lawn well fed. Material for this purpose may easily be had if the park owns a compost yard. The amount of refuse in the way of trimmings, weeds from the lagoon, etc., that accumulates during the year is enormous. Add to this some loam, stable manure and bone-meal and you have an ideal food for lawns and plantations, far better than other fertilizers, because it contributes the necessary humus. The vegetation will look so much better for its good treatment and its beauty in form and color will be so much more appreciable, that all labor will be bountifully repaid, and the park as a whole far better able to give in full measure its charm, beauty and restfulness to those that frequent it.

The park border also needs constant attention, for there is nothing so encouraging to depredation as a ragged and ill-kept border. Iron fences are considered an infringement upon the rights of a free people. They are an injustice to the adjacent property owners, unattractive to the prospective home owners of the right kind, as well as uninviting to the park visitor, who here receives his first impression of the park.

These are the objections usually brought forward against the use of a fence, and since it must be banished on

these grounds, the planting which acts as a barrier to prevent cow-paths, etc., must be given all the more attention. An open and straggling border invites abuse, and the park will suffer in consequence. A clean, well kept border, on the other hand, inspires respect and demands good treatment, at the same time incalculably increasing the effectiveness of the park itself.

No less care must be given to the pools and lagoons, for their beauty and usefulness depend upon their being kept free from weeds. The mirror lake loses its character entirely when vegetation is permitted to cover its surface. Boating becomes a hardship instead of a pleasure, when the stench from the stagnant water and decaying vegetation in the pond makes the lagoon a nuisance. The shore line must be well taken care of, for destruction by wave action, ice, or the little boy out for fish with his bent pin and grocery string, is constantly taking place. A dilapidated lagoon edge is an eyesore and detracts materially from the character and beauty of the water border. In winter the ponds and lagoons should be kept in first-class trim for the fleeting skaters, for, in our northern states, where the short season brings so few out-of-door enjoyments, we need all of such pleasures and benefits that a little extra labor will bring to us. When the long winter comes, when forest and field are clothed in their winter garments, remember that even then the park has not lost in beauty. It is merely pleasing in a different way. The roads and paths should be kept in a passable condition for hibernated city folks, so that they may not lose the pleasures that are to be derived from the park in winter.

Another essential to efficient park maintenance is a vigilant police force, to prevent depredation by the ignorant public, and to keep the moral atmosphere of the park beyond reproach. A good police officer where there is actual need for one, is a profitable investment, but the higher the standard of maintenance, the less need is there for police surveillance. A well maintained park will be populated by the best kind of citizens, among whom vandalism is unknown. Picnickers are less apt to scatter refuse about the park where cleanliness is the motto of the park keepers. The public will patronize a park in proportion as it is kept in an attractive condition, and its usefulness, consequently, depends upon its good maintenance. Parks well maintained cultivate respect and inculcate ideals of cleanliness that are of incalculable value to the community and raise its standard of culture and refinement.

JENS JENSEN.

Chicago.

SPRAYING DEVELOPMENTS IN MASSACHUSETTS

*Solid Stream versus Mist. A Brief Statement of the Writer's
Experience and Observation During the Last Six Years.*

By R. W. CURTIS,

Arnold Arboretum, Jamaica Plain, Mass.

(Continued)

The most important feature of the outfit is that it is composed of two separate units, one the sprayer proper and the other a supply cart of the same capacity to keep the sprayer always supplied with solution. My experience has taught the value of providing some filling device to keep the expensive sprayer with its line of hose and gang of men from standing idle or losing time going for water. The two tanks, sprayer and supply, are of 400 gallons capacity each. They are mounted on medium high, steel, roller-bearing wagons with four-inch tires. One team operates the two carts, whether in woodlands or on the roadside. If we are doing low roadside work and are on the move all the time the supply cart is not used, because our water supplies are not far enough away to justify the use of two teams.

The supply cart is a round, horizontal cart furnished with a simple agitating device consisting of four 4-blade propellers mounted on a shaft running the full length of the tank, so placed as to bring the propellers one-quarter inch clear of the bottom of the tank. The end of the shaft projects through a stuffing-box in the rear end of the tank and is turned by a crank handle. After the driver has put in his poison a few turns of the crank stirs up the whole load. On top the tank in the center is mounted a common double-acting harvester pump with suction pipe properly screened and delivery pipe consisting of a ten-foot reinforced two-inch rubber hose. When filling, the supply cart is driven up alongside the sprayer, the reinforced hose thrown over into the manhole of the sprayer, and the driver pumps over his load while the spraying goes on just the same.

The sprayer itself consists of a half-round 400-gallon tank of the usual stock dimensions mounted forward of a triplex pump, and an ordinary six-horsepower, single cylinder, 2-cycle marine engine. The upper line of the tank is carried back to provide a protecting roof for the pump and engine. The side pieces of this frame are supported by two up-rights rising from the end of the bed-pieces, and are allowed to project over fifteen inches at the rear to furnish a place for coiling the heavy, three-quarter inch tar Marline hose without uncoupling it from the delivery valves. We always operate two such lines of hose and sometimes three.

The wheel of the engine comes at the rear end of the outfit just where it

is handy for starting, and the whole line-up is direct and compact. A universal coupling is inserted between engine and pump, and between pump and tank a simple cog-wheel connection is made direct from the pump shaft to the agitator shaft, which from there on is the same agitator as described for the supply cart. The engine is cooled by a coil of pipe submerged in the solution tank and supplied from a four-gallon water tank fitted with a glass gauge. The circulation is secured by the usual turbine pumping device on the cylinder head of the engine. A special safety release valve exhausts back into the solution tank direct from the delivery line.

Another helpful little arrangement, which suggested itself as the fittings were being piped up, is secured by inserting a wheel valve and a "T" and cap connection in the direct line of the suction pipe from tank to pump. This suction pipe drops straight out of the bottom of the tank and follows back to the pump below, the bed piece turning up when it reaches the pump. The wheel valve is placed nearest the tank and the "T" and cap are turned down at an angle of 45 degrees. By closing this wheel valve the tank can be shut off and the pump can be drained out in case of accident or on a frosty night.

Also by the same arrangement suction can be secured direct from a pond or other outside source and the outfit can then be used for irrigating or watering trees or soaking down a manure pile or cleaning out a well, or for any similar purpose. It is understood, of course, that the suction where it leaves the tank is carefully screened by a stout copper wire screening box, and the manhole of the tank is also screened by a

hanging box strainer which has no business being anywhere else except in the manhole.

This outfit, while not perfect, has nevertheless give very good satisfaction. There are some improvements I would make if I were building it again. I would substitute a 4-cycle, 2-cylinder engine in place of the 2-cycle, 1-cylinder. I would get a little larger pump, but not larger than my engine could handle with power to spare. I would put in a magneto instead of dry batteries, and I would mount the bed on springs. But, just as it is, the outfit is capable of good work and certainly delivered the goods during the past season.

The spraying gang consisted of an engineer who directed all the work, two nozzle men, and a helper for moving hose, ladder, etc. With two 150-foot lines of three-quarter-inch hose equipped with straight one-inch nozzles this engine would pump 400 gallons in thirty minutes under 200 pounds pressure, and average nine loads, or 3,600 gallons, per eight-hour day. This was in Woodland, for Gypsy Moth. The engine ate up nearly five gallons of gasoline a day, but ran right along and gave very little trouble from one end of the season to the other.

Where three lines were used equipped with 10-foot poles and 3-cluster Vermorel nozzles, 160 pounds pressure was maintained and six loads, or 2,400 gallons, were put out per day. This was with soluble oil, for San Jose scale on low crab apples and thorns. If three lines were equipped with single, misty nozzles, the pressure was cut down to 100 pounds and three loads, or 1,200 gallons, were put out per day. This was with soap solution, for lace bug on rhododendrons and kalmias. On the whole, I consider this a good showing for a light, semi-high power machine, and I have no hesitation in recommending such an outfit for an orchard and a small amount of woodland spraying.

(To be continued.)



The favorable report of R. B. Marshall, chief geographer of the Geological Survey, on the creation of the proposed Rocky Mountain National Park in Colorado, is expected to mean that the American public will have another vacation playground in a very short time. A bill has been introduced in Congress providing for the segregation of the proposed park, the private lands therein to be taken in exchange for lands in other parts of the public do-

main. Only part of the famous Estes Park region will be included in the new park. It was at first intended to bring the entire Estes Park region into the area, but there was so much land under private ownership that this was deemed impossible. Only a small amount of privately owned land is included within the area outlined in the report, but the finest scenic features of the Estes Park region are within the park domain.

An international flower show by the Society of American Florists and Ornamental Horticulturists was held last month in New York City, from April 5 to 12. Twenty thousand dollars were offered in prizes and the splendid display was staged in the Grand Central Palace.

According to an opinion of the Controller of the Treasury, Congress failed to make specific appropriation for the acquisition of land for the parkway connection between Potomac Park and the Zoological Park, Washington, D. C., by way of the valley of Rock Creek. However, the commission will proceed with the condemnation proceedings.

The commissioners of Waco, Tex., have purchased ten acres of land lying between Cameron and Baker parks, which remove the barrier preventing consolidation. The city now owns about 100 acres in a continuous strip along the edge of the cedars.

An estimate of the cost of making her lake shore park of 238 acres, including breakwater of some 8,400 lineal feet and reclaiming the land, would give Milwaukee, Wis., one of the cheapest parks she owns, so far as land values are concerned. The Lake Park, purchased in 1890, is the lowest in original cost, for which the city paid \$2,157 per acre. The proposed lake shore park is estimated to cost \$1,470 per acre.

The second annual report of the Vancouver, B. C., Parks Board says that "the year which has just closed was the banner year in the history of the park system."

Theo. Wirth, superintendent of parks, Minneapolis, Minn., and vice-president of the Society of American Florists, has prepared a plan for an outdoor exhibition of planting to be held during the annual convention of the florists at Minneapolis in August next. The Board of Park Commissioners offers the use of the land free and will prepare it for the occasion. This would be a unique feature, of which the growers of plants and shrubs used in landscape gardening will undoubtedly be glad to avail themselves.

Public playgrounds for children in every forty acres or less plat in Iowa cities are assured in an accepted amendment made by Representative Bernbrock, of Waterloo, to the bill by Boettger, of Davenport, relative to new city plats. The Bernbrock amendment provides that in the future every plat of land made in a city shall have set aside and dedicated to the city as a public playground for children one block of the same size as other blocks, not less than 250 feet square, exclusive of streets adjacent thereto. If more than forty acres is platted at one time, it is provided a block shall be set aside for each forty acres platted.

Harrisburg, Pa., in the past eleven years has increased its park lands from 50 to 850 acres. With a population of 64,000, the city now has one acre of parks to every 76 of its population, an average only exceeded, perhaps, by three cities in the country.

A special committee of business men of Springfield has started upon a campaign which, it is expected, will result in the approval of a mill tax levy which will insure for Springfield a system of free parks and playgrounds.

In order to reach the meeting of the National Conference on City Planning at Chicago, May 5-7, and secure the benefit of suggestion from those actively interested in city planning, the School of Landscape Architecture of Harvard University is issuing a Preliminary Outline of its City-planning Classification Scheme, by James S. Pray and Theodora Kimball, giving the main headings, with some indication of the material to be included in the fuller scheme. This Preliminary Outline may be obtained at 10 cents a copy from the Harvard University Press after May 1st. The City-planning Classification Scheme, with alphabetic subject-index, may be ordered in advance, or obtained as soon as issued (about June 1st), at 50 cents a copy, from the Harvard University Press, Cambridge, Mass.

The following National Park publications may be obtained free of charge from the Secretary of the Interior, Washington, D. C.: List of national park publications; an annotated list of books, government publications, and magazine articles on the national parks; national park pictures, collected and exhibited by the Department of the Interior. The following information circulars contain data regarding hotels, camps and principal points of interest, lists of books and magazine articles, sketch maps, and rules and regulations: General information regarding Yellowstone National Park; general information regarding Yosemite National Park; general information regarding Mount Ranier National Park; general information regarding Crater Lake National Park; general information regarding Mesa Verde National Park; general information regarding Sequoia and General Grant National parks; general information regarding the Hot Springs of Arkansas; general information regarding Glacier National Park.

In order to complete comprehensive plans for the extension and improvement of the park system adopted two years ago the Medford, Mass., park commissioners have asked for authority to borrow \$100,000 outside the city's debt limit.

At the annual meeting of the South Park Commissioners of Chicago, held in March, all the officers, including John

Barton Payne, who continues as president of the board, were re-elected. Albert Mohr succeeded to the commissionership vacated by Henry G. Foreman, whose term had expired. A \$620,000 bond issue was passed, of which \$500,000 is for park improvements and \$120,000 for paving improvements.

The total expenditures for Buffalo's park system last year were \$328,836.02, of which \$209,358.87 was paid out for ordinary care and maintenance; \$53,920.92 for new buildings, and \$65,556.23 for the work of the forestry department.

Thirty-two Central American swans, the gift of Colonel Jacob Ruppert, part of his collection at his estate on Long Island, to New York's park commissioners, have been placed on the Central Park lakes and in the flying cage in the Central Park menagerie. Colonel Ruppert explained that the birds' presence on his estate was not approved by other species of swan there and that fights had resulted.

The Park Commission of New Haven, Conn., adopted the plan for beautifying the central green as proposed by Frederic Law Olmsted. The plan calls for a mall twenty-four feet wide extending from Elm and College streets around three sides of the green to the corner of College and Chapel, with no mall on the College street side for the present, at any rate. Elm trees will border it.

The following publications issued by the Department of the Interior are for sale by the Superintendent of Documents, Government Printing Office, Washington, D. C.: Geological History of the Yellowstone National Park, by Arnold Hague; 24 pages, including 10 illustrations; 10 cents. Geysers, by Walter Harvey Weed; 32 pages, including 23 illustrations; 10 cents. Geological History of Crater Lake, Oregon, by Joseph S. Diller; 32 pages, including 28 illustrations; 10 cents. Some Lakes of Glacier National Park, by M. J. Elrod; 32 pages, including 19 illustrations; 10 cents. Sketch of Yosemite National Park and an Account of the Origin of the Yosemite and Hetch Hetchy Valleys, by F. E. Matthes; 48 pages, including 24 illustrations; 10 cents. Analyses of the Waters of the Hot Springs of Arkansas, by J. K. Haywood, and Geological Sketch of Hot Springs, Ark., by Walter Harvey Weed; 55 pages; 10 cents. Proceedings of the National Park Conference held at Yellowstone National Park, September 11 and 12, 1911; 210 pages; 15 cents. Contains a discussion of national park problems by officers of the government and other persons. Remittances for these publications should be made by money order, payable to the Superintendent of Documents, Government Printing Office, Washington, D. C., or in cash. Checks and postage stamps cannot be accepted.

ASKED AND ANSWERED

An exchange of experience on practical matters by our readers. You are invited to contribute questions and answers to this department

Squirrels in the Parks.

"I should like to get the opinions of park men on the desirability of, and provisions for, squirrels in parks. Personally it is a question with me; I know they rob birds' nests of eggs and drive away many of our desirable song birds; the robins and blue-jays seemingly being the only ones able to defend against their depredations. This alone seems sufficient to condemn them by depriving us, not only of the companionship, but the practical benefits of the birds. They are predatory and easily become a nuisance about the residences adjacent to parks. On the other hand they are interesting, become very tame and are a source of amusement to children and of little expense. I appreciate that if they are with us they should be cared for. I will be glad to have the expressions from any who have had occasion to consider it."—A. L. R., O.

While the little rodents are delightfully interesting in our public parks to children, there is no doubt whatever of their predatory habits as regards birds' nests. In the well timbered small parks inside our cities, where only a few birds breed, squirrels may find a happy and appropriate home, and their tameness and friendliness of themselves, and the pleasure they give to our children, and the kindly spirit the little rascals promote in our wee folks surely compensate for their rapacious nature. House them well and feed them well; it will greatly lessen their plundering propensity. Birds prefer the less frequented parts of our parks. On the contrary the squirrels love the most traveled roads and paths—they are the best feeding grounds.

The little chipmunk or ground squirrel, so nimble, so pretty and so cute, also is far from blameless. In my case his greatest sin is in stealing our crocus corms, not in winter, but in summer. It can smell them in the sod, then dig them up and devour them, and the brazen little imp, when it sees me coming, scurries along the pathway, bulb in mouth, and impudently peers at me from a crack behind a stone step or other shelter.

As regards a destroyer of birds' nests, however, the biggest thief of all of our wild animals is the opossum. It works both by day and night, mostly at night. It climbs up into the bushes and the trees, and robs every bird's nest it can discover. Don't mistake his slow movements for innocence, so far as our birds are concerned he is a murderous pirate.

In the little timbered park surrounding our state capitol at Harrisburg is a multitude of gray squirrels. Mr. Samuel B. Rambo, the superintendent of public

grounds and buildings writes me: "Relative to the habits of the squirrels in the capitol park, would say, the squirrels are in the habit of robbing birds' nests of eggs, eating the young birds when they can get to them, eating the new buds in the early spring from the bulbs that are planted in the fall, and do considerable damage. They are, as you know, protected by law in the state capitol grounds."

Central Park, New York City, seems to be a paradise for squirrels, there are so many of them there. Mr. J. H. Beatty, superintendent of the New York parks, writes me: "In regard to the squirrels and wild birds in the parks: There are a great number of squirrels in Central Park, and so far as I can see, they have not had any appreciable effect upon the number of wild birds in the park. There seems to be as many wild birds now as ever. They (the birds) seem to be confined, however, to the more thickly wooded sections, but that is not the result of any interference on the part of the squirrels as far as I can see."

Mr. Frederic S. Webster, an eminent naturalist and the City Ornithologist of Pittsburgh, has this to say on the subject:

Regarding the character and behavior of the various species of squirrels, I am only too glad to give any information in my power.

The general impression as to the robbing tendency of these rodents is well founded.

My experience, covering many years, justifies me in declaring that they are all predatory in habits. The "chipmunk" is no better than the others. They all rob the birds' nests—eat the eggs and even the young at times. You can never have many birds and have them breed where the squirrels abound.

You will appreciate that the squirrels in our parks have no natural food supply of any extent—in some, not any. With irregular amounts supplied, their appetites are sharp, and they are in consequence very much more murderous than if natural supply of food was at hand. I consider them a pest in our parks, and they ought to be gotten rid of if we want birds in variety and numbers sufficient to protect and care for the trees and shrubs and prevent the ravages of insects, which do such damage to all vegetation.

I admire the wildness the squirrels lend to the parks and their attractive and sprightly ways.

Pittsburgh, Pa. WILLIAM FALCONER.

Regarding the desirability of maintaining squirrels in parks, about four years ago we introduced one dozen pairs of gray squirrels in Loring Park, which is centrally located in the city and about 36 acres in extent. We have over 100 squirrels there at the present time and they are the favorites of the visitors to the park. Before introducing those gray squirrels I had all the red squirrels destroyed, and I find that since then the birds have greatly increased in that park. We all know that the red squirrel is a vandal and destructive to bird life. The gray squirrel is certainly very much less so. I do not find that the squirrels, in the least, prove a nuisance to the people of the

neighborhood; in fact, they are the favorite pets of everybody, and with their graceful and tame manners, make friends everywhere. It is my intention to kill off the red squirrels in other parks and substitute the gray ones as fast as we can.

Minneapolis.

THEODORE WIRTH,
Supt. of Parks.

Here at Graceland we find that the beauty and gracefulness of the squirrels does not begin to compensate for their destructiveness to birds' eggs, bulbs, etc., so about two years ago an order was given by the managers for their destruction. A rifle in the hands of the watchman in the early morning accomplishes that purpose.

GEO. L. TILTON,
Supt. Graceland Cemetery.

In reply to the inquiry by the park superintendent regarding squirrels in parks, I am of the same opinion as he, that squirrels may easily become a nuisance. It is not alone that they become a menace to our song birds, but I have seen them eat off the terminal buds of the oak and maples on the north shore to such an extent that they really injure the trees. Personally I like squirrels very much and would not like to see them destroyed altogether, but I think if they were to be introduced into our parks they should be held in check.

Chicago.

JENS JENSEN.

The red squirrel and chipmunk I consider "undesirable citizens" of our parks, if they are at all numerous. The gray squirrel is a decided acquisition, and we encourage them to make their home with us. The squirrels are fed during the entire year, become quite tame, add much to the pleasure of many park visitors, and do little damage *if fed*. There are many gray squirrels here, especially in Keney Park, yet we also have there many birds of different species. I have not known of their injuring birds or birds' nests, but they may do so nevertheless. They do visit neighboring places, but so far seem to have been welcome. At least no one has complained of them to me. I most decidedly favor the gray squirrels in our parks.

GEO. A. PARKER,

Hartford, Conn. Supt. of Parks.

SAN FRANCISCO CEMETERIES.

There is continued agitation in San Francisco over the removal of the condemned cemeteries. Large meetings are being held to favor the removal bills which are before the legislature. However, there is also plenty of opposition, and the San Francisco Labor Council opposes all pending legislation relating to cemeteries and removal of bodies therefrom. Both the Cassidy and Boynton cemetery removal bills are denounced as unjust to the people owning plots in the cemeteries.



PROPOSED ANTI-CEMETERY LEGISLATION

The formation of stock companies to operate profit-making cemeteries in recent years has led to an erroneous but quite wide-spread belief on the part of the public and the legislators in certain states that all cemeteries are immensely profitable private ventures, and has resulted in some proposed anti-cemetery legislation in several states. In New York a bill is before the Legislature providing for the taxation of cemeteries. It is at present in the hands of the Judiciary Committee and no action has been taken on it by either House of the Legislature. In Massachusetts the proposed taxation of cemetery perpetual care funds has been averted by the passage of the following law, which is at present only awaiting the signature of Governor Foss:

SENATE BILL NO. 25.

To accompany the petition of the proprietors of Pine Grove Cemetery of Milford and others that personal property, held for the care of graves and cemetery lots be exempt from taxation.

An Act to Exempt from Taxation Personal Property held for the Care of Graves, Cemetery Lots and Similar Purposes.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Section 1. All personal property held by cities, towns, religious societies and cemeteries, whether incorporated or unincorporated, and by the treasurer and receiver general of the commonwealth or by any corporation, for the perpetual care of graves, cemetery lots and cemeteries, for the placing of flowers upon graves, for the care or renewal of gravestones, monuments or tombs, and for the care and maintenance of burial chapels, shall be exempt from taxation; but this exemption shall not apply to any such personal property held by a cemetery corporation which divides any of the income or profits of the business of said corporation among its stockholders or members.

Sec. 2. All taxes that have already been assessed in any city or town upon property within the description of section one of this act, if same remain unpaid or have been paid under protest, shall, if application for abatement has been or shall hereafter be made within the time provided by law for such application, be abated by the assessors of such city or town.

Sec. 3. This act shall take effect upon its passage.

The following quotation from a recent issue of the Boston *Advertiser*, gives some indication of the general attitude of the public toward the matters affected:

Yesterday, a bill to exempt money devoted to the care of graves from taxation was advanced in the house. There are many self apparent reasons to be urged in favor of this bill. However, it remains to be said that the practice is spreading of organizing companies to develop cemeteries as money-making ventures. The large sums which have gone and are going into these enterprises and the sums which come from them have very generally escaped taxation. If it were possible to discriminate between the two kinds of funds, there

would be many cases where the state would be in every way justified in taxing cemetery funds. However, it does not seem to be possible to make a distinction and, if this is really the case, there is nothing to do but grant the exemption which has been asked.

In New York, the proposed taxation law introduced by Assemblyman O'Brien reads as follows:

An Act to Amend the Real Property Law, in Relation to Excepting Certain Lands from Exemptions of Cemeteries from Taxation.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Section four hundred and fifty of chapter fifty-two of the laws of nineteen hundred and nine, entitled "An act relating to real property, constituting chapter fifty of the consolidated laws," is hereby amended to read as follows:

§ 450. Lands used for cemetery purposes not to be sold or mortgaged. No land actually used and occupied for cemetery purposes shall be sold under execution or for any tax or assessment, nor shall such tax or assessment be levied, collected or imposed, nor shall it be lawful to mortgage such land, or to apply it in payment of debts, so long as it shall continue to be used for such cemetery purposes; excepting, however, that land owned by a cemetery corporation and not in actual use for burial purposes shall be subject to taxation and assessment the same as other property. Whenever any such land shall cease to be used for cemetery purposes, any judgment, tax or assessment which, but for the provisions of this section would have been levied, collected or imposed, shall thereupon forthwith, together with interest thereon, become and be a lien and charge upon such land, and collectible out of the same. The provisions of this section shall not apply to any land held by the city of Rochester.

§ 2. This act shall take effect immediately.

A temporary organization known as the "Allied Cemeteries Association of New York" has been formed to oppose the passage of the act, and has begun an active campaign against it.

This association has no officers and no real organization. A number of cemeteries recently sent representatives to an informal convention held in New York to take measures to oppose the legislation pending. At that convention Richard T. Greene, attorney, 43 Exchange place, New York City, was appointed chairman of a committee of four, the other members being William S. Coggeswell, Louis L. Kahn and Charles Oechler. They issued a printed circular, to which they received a number of replies. The circular reads as follows: To All Cemetery Associations in the State of New York:

New and startling legislation is proposed at Albany. It is proposed to tax cemetery lands the same as all other lands. Only the spaces actually occupied by graves and the access thereto are to be exempt. It is also proposed that in New York City, cemeteries be subjected to the payment of assessments for street openings and sewers.

It is thought that this proposed legislation may have its origin in the idea that all cemetery corporations are money-making concerns, well able to bear the burdens of taxation. This idea we believe erroneous. Most cemeteries have barely sufficient income to meet their annual expenses. When the income ceases to be sufficient for proper upkeep, the cemetery is, as a rule abandoned, and soon obtains a neglected appearance. If the legislation now pending should become law many apparently flourishing cemeteries would, we believe, be abandoned, because the state would by taxation take away the funds which otherwise would go to the preservation of the graves of the dead and the plots wherein the dead are interred. The committee appointed by the allied cemeteries of Greater New York are desirous of obtaining at the earliest possible moment, for use in opposing these bills statistical information showing the practical effect upon the various cemeteries of the imposition upon them of taxes and assessments. We ask each recipient of this circular letter to respond at once, giving in as much detail as possible, answers to the following questions:

1. If a real estate tax were assessed annually on your property, from what funds would you pay it?
2. If real estate taxes were assessed against the owners of individual plots, how, in your opinion, could they be collected?
3. If repeated assessments for neighboring local improvements were assessed against your cemetery, from what funds would you pay the same?
4. If taxes or assessments were levied against you which you had no means to pay, would you be able to sell certificates of indebtedness to raise funds wherewith to pay the same? If so, what security could you give for such certificates and would they bear interest, and from what funds would the certificates be ultimately paid?
5. If you are able to pay taxes and assessments, would such payments deplete the funds at hand set aside for the permanent upkeep of the cemetery?
6. What are your principal sources of revenue and what are your principal items of expense?
7. Does your association conduct its business for profit or as a charitable or semi-public organization?
8. Would your trustees continue to serve your organization if the state should impose burdens of taxation which the trustees had no funds to meet? And if not, what would be the effect upon the cemetery?

9. If the revenues of your cemetery were reduced by taxation so as to become insufficient for the upkeep of the cemetery, what effect would that have as to the existing plots in which interments have been made?

10. Please state any circumstances of peculiar hardship which such taxation laws would impose upon your cemetery.

If you have not already joined the Association of Cemeteries we urge you to do so promptly.

Hearings on the tax bills now before the legislature will be held during the week beginning March 24th, and your prompt response to this communication is urgently requested, as the information is needed for use before the Legislative Committee.

This committee also appeared before the committees of the Senate and Assembly opposing the legislation upon the ground that practically every cemetery organization under the Rural Cemeteries Act of 1847 has difficulty in making ends meet:

that the taxation if imposed could not be collected; that the trustees, who in most instances served without pay, would resign their offices and abandon the cemeteries if taxes were imposed which the cemeteries could not pay, especially if by any possibility the trustees could be held individually liable for the debt. The present Membership Law of New York, of which the cemetery law is a part, imposes individual liabilities upon directors of such corporations.

In recent years a number of cemetery stock corporations have been formed to make profits, and there is a general belief that these cemeteries have been profitable. The sentiment seems to be that such corporations ought to be taxed, but that those cemeteries which are operated as quasi public institutions and without profit ought not to be taxed.

In Pennsylvania there is a bill before the Legislature prohibiting cemeteries from excluding outside gardeners from working on cemetery lots. The trouble apparently had its inception in Philadelphia in the enforcement at the first of the year of the rule against outside gardeners at Mount Peace Cemetery, a burial ground controlled by the Order of Odd Fellows. A bill now before the Legislature reads as follows:

NO. 1693—SESSION OF 1913.

An Act prohibiting corporation, co-partnerships or companies conducting a cemetery from excluding persons duly authorized by lot holders in said cemeteries to enter said cemeteries to do gardening work and decorations on lots therein, and providing a penalty for violation of said act by officers, managers, agents or employees of said corporations, co-partnerships or companies.

Section 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same,

That on and after the passage of this act it shall be unlawful for any corporation, co-partnership or company engaged in conducting a cemetery to exclude from the said cemetery any person or persons lawfully authorized by any lot-holder in the cemetery conducted by said corporation, co-partnership or company to enter the said cemetery and to perform such gardening work and decoration in and about the said lot as said person may be duly authorized to perform by said lot-holder; provided, that said person so doing the work shall comply with the general regulations of the said corporation, co-partnership or company with respect to said gardening work and decorations.

Sec. 2. Any corporation, co-partnership or company, or any superintendent, officer, manager, agent or employe of said corporation co-partnership or company violating any of the provisions of this act shall be guilty of misdemeanor and subject to a fine of five hundred dollars (\$500.00) for each and every offense.

The bill passed first reading in the House April 7, and a public hearing was given on it April 22. W. B. Jones, superintendent of the Highwood Cemetery, and William Falconer, superintendent of the Allegheny Cemetery, led a delegation of Western Pennsylvania cemetery superintendents that appeared against the bill. Mr. Jones, in an interview in a Pittsburgh paper, says of the proposed measure: "Such a bill if enacted not only would do harm but would be an entering wedge for other bills to permit grave diggers from outside to come into cemeteries and finally do away entirely with the power of superintendents to supervise their own cemeteries. Looking at it from a financial viewpoint, the cemetery authorities would be responsible for the cleaning up of the litter left by the outside contractors and yet would receive no compensation for their care."

William H. R. Lukens, a Philadelphia attorney, defended the action of the Mount Peace management, which also control the other cemeteries of the Odd Fellows at Twenty-third and Diamond streets, and

Lawn View, in the suburbs of Philadelphia.

The lots having all been sold in the old Odd Fellows' Cemetery and nearly all in Mount Peace, Mr. Lukens said, the cemetery officials found it necessary to derive an income from lot care-taking in order to pay expense of maintenance. He said that it had been the intention to make the order barring outside gardeners operative on January 1, 1912, but owing to the requests of lot holders it had been put off a year.

Attorney Charles S. Townsend, of Philadelphia, spoke on behalf of Northmont Cemetery, and Robert T. Corson spoke for Oakmont Cemetery. William Falconer, superintendent of the Allegheny Cemetery also opposed the bill, as did William Cavanaugh, superintendent of gardening at Laurel Hill; former Representative John Connell and former Councilman Charles Connell, who are interested in Mount Moriah Cemetery, Philadelphia, founded by their fathers.

On behalf of the cemetery companies it was maintained that the ten per cent of the price of each lot which must be set aside for the maintenance of such lots is not sufficient to keep them in good condition.

Representatives of lot holders were on hand to uphold the bill.

John Monaghan, as counsel for a committee headed by Samuel B. Jones, P. J. Kelly and Michael Drennan, of Philadelphia, made a speech in favor of the bill in which he made a loose appeal to anti-trust sentiment by denouncing what he termed "a cemetery trust, a graveyard trust, if you please."

The bill has not yet been acted on by the Legislature.

CONVENTION OF OHIO CEMETERY MEN

Editor PARK AND CEMETERY: The Twelfth Annual Convention of the Ohio Association of Cemetery Superintendents and Officials will be held at East Liverpool and Steubenville, June 25th and 26th, with headquarters at the Travelers Hotel, East Liverpool, the meetings to be held in the Y. M. C. A. building.

A very interesting program has been prepared and it is the duty of every superintendent in the state to be there and see if they can make this one of the best meetings that the association has ever had.

The program is as follows:

First Day—Morning Session.

10 a. m., meeting called to order.

Prayer, Rev. Edwin M. Curby.

Welcome Address, Mayor R. J. Marshall.

Response, G. E. Whitaker, Youngstown, Ohio.

Roll call.

Application of new members and reception of same.

President's Address, Fred I. Sloane, Ironton, Ohio.

Secretary's Report and Communications.

Payment of fees and dues.

Paper, "Tree Surgery in Parks and Cemeteries," E. A. Sloan, Marion, Ohio.

Discussion of Same, Fred Green, Cleveland, Ohio.

Report of Delegate to National Convention, Geo. Gossard, Washington, C. H.

Question Box.

Appointing Committees on Auditing, Location, Resolutions.

First Day—Afternoon Session.

1:30 p. m., take cars for Riverside Cemetery.

Inspection of Grounds.

3:00 p. m., meeting called to order at G. A. R. chapel.

Paper, "Mausoleums," L. Y. Stephens, Columbus, Ohio.

Discussion of Same, J. C. Cline, Dayton, Ohio.

Question Box.

Unfinished business, new business.

First Day—Evening Session.

8:00 p. m., banquet at Y. M. C. A. hall. Special music and speeches.

Second Day—Morning Session.

9:50 a. m., take cars for Steubenville where carriages will be in waiting to go to the Union Cemetery.

Inspection of grounds.

Return to city.

Lunch at Y. M. C. A. hall.

Second Day—Afternoon Session.

Paper, "Renovating Old Lawns," J. A. Reed, Canton, Ohio.

Report of committees.

Officers of Association.

President, Fred I. Sloane, Ironton, Ohio.

Vice Pres., R. E. Gifford, Ravenna, Ohio.

Sec'y and Treas., G. C. Anderson, Sidney, Ohio.

FOR AND AGAINST THE COMMUNITY MAUSOLEUM

Reprinted from the Monumental News

THE MONUMENTAL NEWS has always held its pages open to a reasonable discussion of both sides of any question that affects the interests of the trade, regardless of what might be its own views. Consequently it has been our intention at some time or other to describe the best as well as the worst that has been done in the way of community mausoleum construction. Thus far it has been very difficult to find anything of the best to talk about. Thus far none of the large city cemeteries, which are generally the best managed, has allowed a community mausoleum to be erected on its grounds. Rosehill and Elmwood of Chicago announce that they are going to erect perfectly constructed, amply endowed and well cared for buildings, but as these are still on paper, they can hardly yet enter into consideration.

We have been told on several occasions by people interested in the Wisconsin Mausoleum Construction Co., who are building the Fairview mausoleum in Milwaukee, that theirs would be the last word in mausoleum construction, as perfect as human building skill and good building material could make it. It was announced that the exterior would be of Wisconsin mahogany granite, a material of unquestioned quality, and the interior of a good quality of real marble. The officers of this company are: President, George L. Thomas, a leading undertaker and ex-president of the National Funeral Directors' Association; vice-president, Frank B. Fargo; treasurer, Jacob Schaefer, a leading monument dealer; and secretary, W. S. Halladay. We had thought that it would be profitable to present to our readers a description of this building and of the methods of management and of care under which it is to operate, from the point of view of the general public, the prospective crypt buyer who wants to know not only how the structure is to be built, but how it is going to be managed.

Consequently we were disposed to meet the promoters half way when we received the following communication from the Wisconsin Mausoleum Construction Co.:

Monumental News, Chicago, Ill.

Gentlemen: We have been very much interested in your article with the headline of "Community Mausoleums in Illinois and Ohio" published in your periodical of February, 1913.

In reading this matter over we are wondering whether or not you people are broad enough to discuss Community Mausoleums from both standpoints of good as well as bad; if so we would be pleased to take up this proposition with you and write you in full regarding our Milwaukee building, which has been passed and approved by Washington authorities, as being the most perfect construction of its kind within the borders of the United States.

It is needless to say that if poor mausoleums can be built that good ones can, and I believe that since you have opened this matter for discussion

it is no more than reasonable that you should discuss both sides of the question.

You have only taken the one side in this discussion, which is detrimental to the business, and in the long run when people discover that good buildings can be built it is going to be detrimental to your paper.

Trusting we may hear from you, we are,

Very truly yours,
The Wisconsin Mausoleum Const. Co.
W. S. Halladay.

Believing that they were in earnest and wanted to freely and fairly discuss their construction and methods of business from the point of view of the crypt-buying public, THE MONUMENTAL NEWS replied to the above communication as follows:

The Wisconsin Mausoleum Construction Co., Majestic Bldg., Milwaukee, Wis.

Gentlemen: Replying to your letter of March 1st we have had in mind for some time to get a description of your building in order to give our readers an idea of how the better class of these structures are erected. While it has never been demonstrated that any building, no matter how perfect its construction, is sufficiently enduring to house human remains to the number of several hundreds or several thousands for all time, we are perfectly willing to allow you to defend your side of the proposition in our paper.

Will you kindly describe for us briefly the methods of construction of your building and the methods of managing it which you have outlined? We do not care for any of the matter that you people ordinarily use in your advertising along the line of the sentimental advantages of mausoleum interments over earth burial. We are interested only in your methods of construction. In the description which you sent us will you kindly answer definitely and in detail the following questions:

How many crypts; selling price per crypt; total cost of building.

Describe crypt construction, and give number and date of patent on it.

What is the new feature of your construction that is patented?

How does your crypt construction resemble or differ from that employed in the construction of the best private mausoleums?

Are crypts sealed hermetically or are there openings for ventilation?

How do you propose to take care of decomposing bodies that have been imperfectly embalmed?

Will you require all bodies to be embalmed, and how will you enforce this requirement and determine whether embalming has been done thoroughly?

What sum have you set aside as an endowment for the perpetual maintenance of the structure; who is to have control of this fund; how and by whom is it to be invested, and what revenue do you expect it to yield?

What work of maintenance and care will be done on the building and grounds?

Who are the Washington authorities that have "passed and approved your building as the most perfect of its kind within the borders of the United States?"

How have you provided for the remodeling of this building or the rebuilding of it in years to come when it deteriorates, as all buildings do, no matter how well they are constructed?

Will you kindly also let us know what you can furnish us in the way of illustrations of your methods of construction, and we will then let you know just what we need in the way of pictures.

We then began to figure on the number of pages we should have to set aside to do justice to the full and complete details, accompanied by patent specifications, drawings and photographs of this wonderful structure, which "has been passed and approved by Washington authorities as being the most perfect construction of its

kind within the borders of the United States."

Instead, we received the following characteristic piece of promoters' literature:

Monumental News, Chicago, Ill.:

Gentlemen:—We are in receipt of your letter of the 8th inst., in which you state that you are willing to allow us to defend our side of the proposition in your paper.

You also make the statement that it has "never been demonstrated that any building, no matter how perfect its construction, is sufficiently enduring to house human remains to the number of several hundreds or several thousands for all time." When you make the statement "for all time" you are correct, because we do not know how long time is going to continue; but we do know this: that there are buildings standing today in a fair condition of preservation in which human bodies were placed 829 B. C. These buildings have been investigated within the last few years, and we find that during all these years they have received very little repair.

So far as the proposition of housing several hundred or several thousand bodies, that matter is immaterial, for in a house in which one body can be preserved for all time you could preserve several thousand on the same basis.

You ask us to kindly describe the method of our construction, the method of managing, and many other things which seem to appeal to you people from a standpoint of taking the other side of the proposition. You ask us to specify the selling price of the crypts, the total cost of the building, and many other things which have only an indirect bearing on the proposition. You ask for a description of the crypt construction; the date of our patents; which has no reference to our building. You further ask whether the crypts are hermetically sealed or whether there are openings for ventilation, when it is positively known that no receptacle holding a human body can be hermetically sealed without any vent without an "explosion." You further ask how we propose to take care of decomposing bodies that have been imperfectly embalmed and whether we will require that all bodies be embalmed, and how we can enforce this requirement and determine whether the same has been done or not.

It would seem that anyone familiar with the dead would be forced to realize that the first obligation of an undertaker is that he pass an examination before the State Board of Health as to his ability to perfectly embalm a body. The embalming of a body requires a perfect circulation of "formaldehyde," which, when the fluid returns to the artery into which it is sent there can be no question that the body is properly embalmed.

The proposition before the American people today is whether or not these buildings can be properly constructed and properly cared for, or whether they are failures, as has been demonstrated in some of the buildings built for profit.

We are more than willing to go into the proposition with you on a basis of perfect construction and perfect method of care for the dead, mode of construction, or anything that has any bearing directly on perfect construction against poor construction, and further than this, we have a building to demonstrate our claims in the matter, which we would be more than willing to have you investigate, and allow you to decide for yourself whether or not our building is worthy of the patronage of the people of this country, and whether or not we are not justified in demanding this character of building in our state. I feel more than certain that it would be to your advantage to come to Milwaukee personally and look over the proposition, and then write an article for the best interest of the people, leaving out all advertising, and we would be willing to furnish you with such illustrations as you would need to illustrate your article if you saw fit to write the same.

Trusting we may hear from you relative to this matter, and thanking you very kindly for your favor and your being willing that we should defend our proposition, we are,

Very truly yours,
THE WISCONSIN MAUSOLEUM
CONSTRUCTION CO.,
W. S. Halladay, Secretary.

It will be noted in the above communication that Mr. Halliday very gracefully sidesteps answering all of the essential points of information asked for except two, and in his answers to these two betrays such a quantity of misinformation that for the good of his cause he had much better refrained also from answering these.

served you could preserve several thousand on the same basis," is also merely an opinion, and unsupported by scientific evidence or experience. In fact, anyone who is familiar with mausoleum construction knows that it is impossible to secure the "same basis" of construction in a building holding several thousand or several hundred bodies as in one containing a half

parts of the country. In fact, the shipping rules adopted by the Conference of State Boards of Health, which are in force in nearly every state in the Union, positively require that bodies dead of certain diseases be hermetically sealed in metal-lined caskets or the caskets hermetically sealed in metal-lined outer boxes. We quote from this rule as follows:

THE FUTURE OF THE TENEMENT MAUSOLEUM

A Community Mausoleum Argument Without Words



ACTUAL PHOTOGRAPH TAKEN IN A SOUTH AMERICAN CITY WHERE COMMUNITY MAUSOLEUM INTERMENT HAS BEEN PRACTICED LONG ENOUGH TO TEST ITS VALUE.

In his second paragraph he refers to "buildings standing today in a fair condition of preservation in which human bodies were placed 829 B. C." In the absence of any photographs of the said buildings or any disinterested report on their condition, we should prefer to doubt the accuracy of this information. On the other hand, we show on this page a photograph of a community mausoleum erected considerably later than B. C., which Mr. Halliday will doubtless admit is hardly in good condition for receiving interments.

The statement in the next paragraph that "in a house in which one body can be pre-

dozen. It is impossible to secure the massive stones, the small number of pieces, the absence of vertical joints, the roof construction of a few large stones that are essential features of good construction in private mausoleums.

"It is positively known," says Mr. Halliday further, "that no receptacle holding a human body can be hermetically sealed without any vent, without an explosion" (presumably meaning an "explosion").

On the other hand, "it is positively known" that bodies are hermetically sealed in caskets and metal-lined shipping boxes every day, and shipped to various

Rule 2. The transportation of bodies dead of Asiatic cholera, yellow fever, typhus fever, diphtheria (membranous erup), scarlet fever (scarlatina, scarlet rash), erysipelas, glanders, anthrax or leprosy, shall not be accepted for transportation unless prepared for shipment by being thoroughly disinfected by (a) arterial and cavity injection with an approved disinfecting fluid; (b) disinfection and stopping of all orifices with absorbent cotton; and (c) washing the body with the disinfectant, all of which must be done by an embalmer holding a certificate as such, issued by the state or provincial board of health, or other state or provincial authority provided for by law.

After being disinfected as above, such bodies shall be enveloped in a layer of dry cotton not less than one inch thick, completely wrapped in a sheet securely fastened and encased in an air tight zinc, copper or lead lined coffin or iron casket, all joints and seams hermetically sealed, and all enclosed in a strong, tight wooden box, or the body prepared

for shipment by disinfecting and wrapping as above, may be placed in a strong coffin or casket, encased in an air-tight zinc, copper or tin lined box, all joints and seams hermetically soldered.

Will Mr. Halladay kindly verify this statement by referring it to the excellent undertaker who is president of his company and ask him how many "explosions" he has heard in the bodies he has shipped in hermetically sealed caskets? We should also call attention to the Indiana state law requiring that crypts be hermetically sealed. These "explosions" in Indiana will be awaited with much interest, and perhaps may some day be heard in Wisconsin, when a similar law is passed in that state.

Referring to the next paragraph, we are quite aware, Mr. Halladay, that embalmers are examined and licensed by the state, but it is a fact that will be verified by any good undertaker that a large proportion of the bodies buried are not perfectly embalmed. In fact, we should like to quote on this point no less an authority than Mr. George L. Thomas, president of the Wisconsin Mausoleum Construction Co., who once said, if the Milwaukee *Free Press* correctly quotes him: "Embalmers are licensed, but the examination they are subjected to is not as stringent as it should be, as when a licensed embalmer has cared for the body of a person dead of contagious disease that body is eligible to shipment to any part of the state. If the embalmer does not know his business thoroughly, the body is likely to be shipped in such a condition that others will be exposed to the disease. Undertakers who are not embalmers may care for these bodies, though not ship them."

We quote further from Mr. Thomas Davidson, formerly secretary of the Conference of Embalmers' Examining Boards of North America: "You would be surprised to know the number of embalmers (?) throughout these United States who are doing nothing but cavity embalming, and not always that, who point with pride when you enter their office to a beautifully engraved and elaborately signed diploma from an embalming school, and alongside of it one or two state licenses, giving them the privilege and purporting to show the public that they are expert embalmers and masters of bacteriology and sanitary science, where, if called upon to be compelled to embalm a body by arterial injection, they send to their neighboring town for a licensed embalmer, or, if they try to do the work, utterly fail and the body goes back on them." That perfect circulation of "formaldehyde" (presumably "formaldehyde"), then, is seldom obtained.

Concerning your kind invitation to visit this model home for the dead, Mr. Halladay, even if we should do this, it would be necessary for us to have the information asked for in our letter above before we could write intelligently concerning the

construction of your building or your methods of managing and caring for it, which are just as important to the crypt-buying public as the construction. In giving sufficient praise to this wonderful building it would be particularly helpful for us to have a signed copy of the endorsement of the "Washington authorities" who have "passed and approved" this structure as "the most perfect construction of its kind within the borders of the United States."

For example, how could we judge of your crypt construction without a study of your valuable patented features, or how could we judge whether it were possible to build big mausoleums as thoroughly as private ones unless you tell us how your construction resembles or excels the construction of private mausoleums.

The questions of endowment and management are fundamental from the public's point of view.

We had no idea that these simple questions asking for fundamental information were going to be so formidable for the builders of the "most perfect construction of its kind" to answer. In view of the fact that they are, we should suggest to monument dealers who are fighting community mausoleums of not nearly so perfect construction that these questions be publicly submitted to all mausoleum promoters and the answers carefully analyzed. We should be glad to hear from other mausoleum promoters who should care to answer, verbatim and seriatim, the questions propounded above.

THE TENEMENT MAUSOLEUM IN THE SMALL TOWN.

By L. M. Wilcox.

While it is true that some towns have accepted the tenement mausoleum after a perfunctory and unskilled investigation, I have yet to learn where they have proven safe or sanitary as burial receptacles. Too little thought has been given such essentials as permanency, care and repair, responsibility for construction and maintenance. Few people realize that mortuary structures are supposed to last forever, which is a long time, longer than fifty years—yes, longer than a century. Any mausoleum builder or cemetery superintendent knows that twenty-five years will find the average community mausoleum very much in need of repairs.

The designing, planning and construction of the smallest mausoleum known requires the attention of especially fitted architects, men who have made such work a life study, men who know the requirements of everlasting burial structure. Ordinary residences or business houses are wholly unlike mausoleums in that they are occupied by life and have heating appliances and receive constant attention and repair until ready to be torn down and replaced

with new structures. Community mausoleums are absolutely different; they are unoccupied by life, full of frost in the winter and dampness in the summer, have no heating plants and never, in my opinion, have been properly ventilated. This alone will cause more deterioration and decay, with need for repairs, than is usually found in an occupied building.

Who is to pay for such repairs and the necessary care on a semi-publicly owned building for burial purposes? The promoters will tell you that they leave an endowment fund sufficiently adequate. Let us analyze this. They leave \$5 or \$10 for each crypt, which will amount to \$1,500 to \$3,000 if there are 300 sold. This amount at 4 per cent interest would make a total revenue of \$60 to \$120 per year. A munificent sum to take care of a structure of this kind! The average endowment provided would not supply decent janitor service, to say nothing of repairs and reconstruction.

I have known of five such buildings needing a new roof within three years, also numerous other repairs, which completely exhausted the endowment fund in a very short time.

Is there really any legitimate demand for community mausoleums? *Who is back of them? Are the cemetery trustees in favor of them?* It seems not, in most cases.

When we have beautiful burial grounds, carefully managed, is it possible that the people will permit entire strangers to come into their midst and establish this doubtful form of interment for revenue only? The whole thing is an absurdity, and even though there should be some demand for a public mausoleum, it should be built carefully and properly within the cemetery grounds, under the supervision and responsibility of the legally appointed trustees. The trustees of Ferncliff Cemetery, Springfield, O., were approached many times within the last few years by certain firms asking permission to promote such burial schemes within the grounds, but have always refused. The present crowd of promoters made threats that they would purchase a lot near the cemetery and promote the thing regardless. After being turned down by the trustees they visited every funeral director in the city in their attempt to get someone to lend aid and influence—even visited some of the monument firms. It is public rumor that they succeeded in interesting only one, and if statements are true in other towns, the inducement is much more pecuniary than the undertaker of promoters would care to acknowledge.

That such methods are used has been made public in council meetings in the town of Princeton, Ill., where an undertaker named Phelps acknowledged receiv-

ing \$500 for his services. It is generally known that the promoters in Springfield are not local citizens, although they have rented homes and will probably stay until their scheme proves a failure or success.

It is certainly well known that all members of the Cemetery Board are local citizens and have the best interests of the people in mind; they have managed Ferncliff ably and well for years, and when they decide that a scheme is unfit for their approval, that should be a good cause for others to reject it.

When other cities like Decatur, Ill., Toledo, O., Ada, O., and Troy, O., as well as other towns, have tried these schemes and find them undesirable, it is surely evidence that there is something wrong somewhere.

A representative of one of the largest and most experienced private mausoleum builders in the United States recently stated that the Decatur (Ill.) building had a crack from the gable to the foundations and that over thirty bodies had been removed to graves in the local cemetery.

At Troy, O., this has proven true in many cases and I have like reports from numerous other points. Should these reports prove true, they alone should cause anyone to reject the scheme; but greater than these is the question, *Who is responsible for the building?*

After a period of years isn't it reasonable to presume that many of the crypt owners will die or move away? Who will take interest in the building and see that it is repaired and cared for? Will it become a charnel house and a ruin? Who would want to own property adjoining a thing of this kind?

I believe the day will come when the State Boards of Health will pronounce them a menace and declare them a nuisance.

With all this, the promoters do not assure you that there will be no contagious diseases placed in the crypts next to those you own.

With such bodies therein, would it improve health conditions if these buildings should crack, as others have, permitting the foul gases and odors of decomposed bodies to escape into the air?

Do you realize the enormity of these conditions?

Of course, the promoters will tell you that these buildings are constructed to endure forever. That's quite a long time. No building erected by the hand of man has even endured for the present short span of history.

If there should be a legitimate demand for such forms of burial, let the Cemetery Board supervise the erection, thus becoming legally responsible in every way.

Princeton, Ill., Turns Down the Tene-ment Mausoleum.

A decree enjoining the International Mausoleum Co., of Chicago, from erecting one of their community mausoleums in the Oakland Cemetery, Princeton, Ill., was granted by Judge Joe A. Davis in the Circuit Court there on April 15. The state was represented in the matter by State's Attorney C. N. Hollerich, and the complainants were represented by Attorneys J. L. Spaulding and Watts A. Johnson. This action on the part of the circuit judge practically kills the mausoleum proposition so far as the city of Princeton is concerned, and the contract entered into by the city of Princeton and the company is null and void.

The facts in the case are still fresh in the minds of the people of the city. Several representatives of the company made frequent visits to the city, during which time various matters were brought to bear upon the aldermen and the mayor in order to try and induce them to cast their votes in favor of the mausoleum, so it is said.

At first it was proposed to erect a cement building in this cemetery, and then the concern decided that the proper thing to do was to put up a 240-crypt mausoleum, built out of Bedford stone. When the matter was first brought before the council it was not thought much of; a majority of the aldermen were against it. S. W. Holmes, who was then in the city, representing the company, took a number of the aldermen to Galesburg, where they had just completed a Bedford stone mausoleum. The building was thoroughly inspected, and after that trip several of the aldermen changed their minds as to the advisability of allowing the company to erect a similar one here.

At the meeting which was held in the council chamber last August the company was granted an option on the desired tract of land. At a later meeting a petition, signed by some reputable citizens of the city, was presented to the council, asking that they refuse to grant the company the option which they desired. This was not recognized by the council, and, as a last resort, Mayor Russell vetoed the matter, and in a lengthy written statement set up his ideas of why he thought the mausoleum was not a desirable building to be erected in the cemetery. The council voted to give the company the option, however, which was sold for one dollar, and gave the company one year in order to start work on the building, and nothing more has been done with it.

Attorney C. A. Trimble represented the Mausoleum company in their first battle in the council, but in the Circuit Court recently Mr. Trimble told the court that he had withdrawn from the case and was not acting as counsel for the company any more.

Indian's Community Mausoleum Law.

A bill has recently been passed by the Indiana Legislature giving the State Board of Health jurisdiction over all community mausoleums erected in that state. The law reads in full as follows:

Section 1. Be it so enacted by the general assembly of the State of Indiana, that, hereafter, when any person, firm or corporation, shall desire to build, construct or erect any mausoleum, vault or burial structure, the same to be built or constructed entirely above the ground, or partly above and partly by excavation, and to be built, constructed and erected so that the same may contain twenty or more deceased human bodies for permanent interment before proceeding to build, construct or erect such mausoleum, vault or other structure, shall present all plans for such construction to the State Board of Health of the State of Indiana, and if approved by such board, may proceed with the construction and erection of such mausoleums, vault or other structure.

Sec. 2. All crypts, or catacombs, if any be placed therein, in such mausoleum, vault, or other structure, shall be so constructed, that all parts thereof may be readily and easily examined by the State Board of Health or any other health officer, and such crypts or catacombs, shall be hermetically sealed, after such deceased body or bodies shall have been placed therein, that no offensive or unhealthful odor or effluvia may escape therefrom.

Sec. 3. Should any person, firm, or corporation, fail to hermetically seal such crypt or catacombs, so placed or constructed in such mausoleum, vault or other burial structure, and by reason of such failure offensive odors or effluvia arise therefrom, such State Board of Health, or any other health officer of the state or county, in which such mausoleum, vault or other burial structure shall be situated, shall, upon the complaint of any resident of the township, where such mausoleum, vault or other burial structure may be situated, compel the sexton or other person in charge of such mausoleum, vault or other burial structure, to immediately remove said deceased body or bodies therefrom and properly inter the same, at the expense of the person, firm or corporation, owning such mausoleum, vault or other burial structure. And if no such person, firm or corporation can be found in county where the same may be located, then such interment shall be at the expense of the township, where such mausoleum, vault or other burial structure may be situated.

Sec. 4. Any person, firm or corporation, who shall fail or refuse to comply with the provisions of this act, may be fined in any sum, not exceeding five hundred dollars, to which may be added imprisonment in the county jail, not exceeding six months.

New York Cemetery Legislation.

After hearing representatives of both sides of the controversy concerning the proposition to establish a cemetery and mausoleum at Herricks, Long Island, N. Y., Governor Sulzer signed the Maloney bill preventing any more cemeteries in Nassau county, on March 27. The bill is designed specifically to prevent the erection by the Repose Mausoleum Company of a large mausoleum at Herricks, near North Hempstead. The bill has been favored by the wealthy residents of Nassau county, who have taken the position that there was no public necessity for the mausoleum, inasmuch as there are now sixty-nine cemeteries in the county.

A number of bills have been brought before the New York legislature, the object of which is to give the city of New York the authority to extend streets through Brooklyn cemeteries.

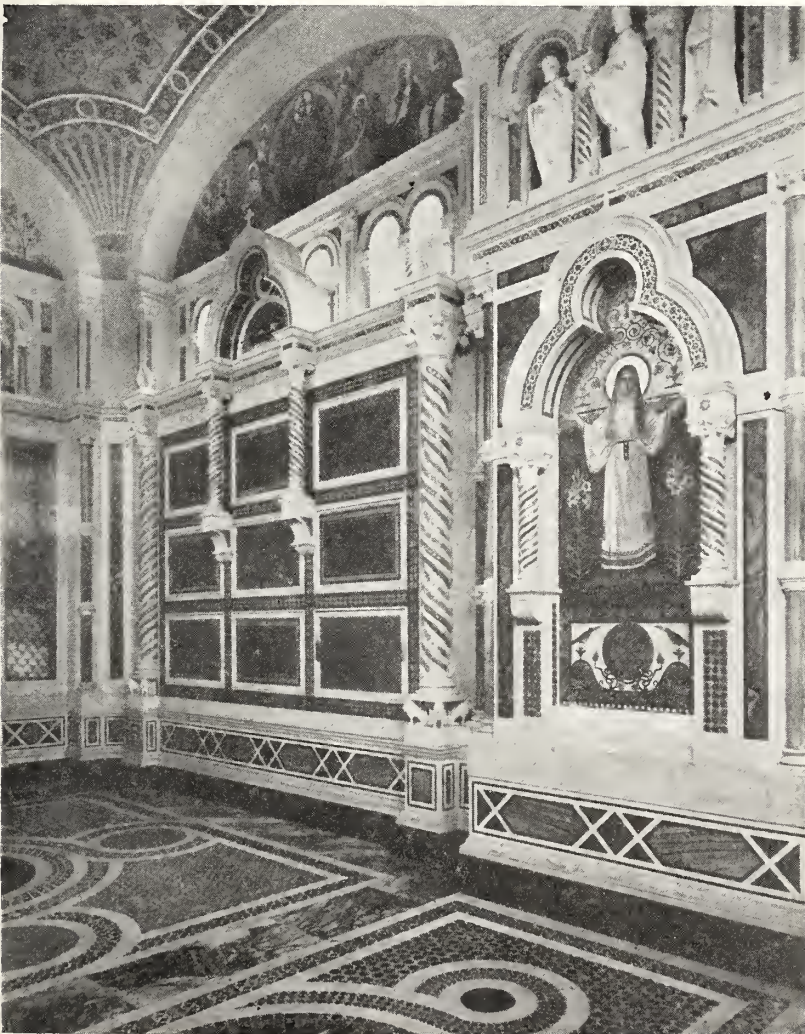
REMARKABLE ARCHBISHOPS' MAUSOLEUM

One of the most remarkable mausoleums in the world, and the only one of its kind in this country, is the elaborate structure recently completed in Mount Carmel Cemetery, Chicago, as the last resting place of the archbishop of the archdiocese of Chicago. The structure was in course of erection for three years. Prelates and priests who were present when Archbishop Quigley made his inspection of the structure predicted that people from all parts of the country would visit the place as soon as the character of the work became known. Aristide Leonori, of Rome, is the architect of the structure, and associated with him were Giacomo Soznogno, expert in mosaic work from Venice, Italy, and Alfonso Marsili, a sculptor from Rome. Many rare stones used in the interior work were brought from Europe. Elaborate scenes worked in mosaic upon the walls are replicas of those in the catacombs and Roman mausoleums. There are also statues of saints, evangelists and apostles. Recently the remains of Bishop Quarter, the first bishop of Chicago, and of the late

Archbishop Feehan were placed in its crypts.

The exterior of the structure is of dressed Bedford stone, and the interior of Carrara marble taken from the catacombs of Rome. The floor is laid in elaborate mosaic designs in Carrara marble. There are four immense mural paintings around the dome, under the arches and on the vaulting of the apses. The paintings represent Biblical scenes and are executed after the style of those in the catacombs of Rome. Surmounting the structure is a life-size figure of an angel, in bronze, and on the door is the bronze coat of arms of the bishop. The crypts are of Carrara marble, with massive brass trimmings. All of the interior work was done by artists and artisans brought from Italy for the purpose. William Gubbins, of Chicago, was the local architect.

The altar is executed in Carrara marble with inlaid mosaics and mosaic figures representing St. Patrick, St. James Apostle, St. Boniface, St. Stanislaus, St. Joseph and the Blessed Virgin. Above the



INTERIOR VIEW OF ARCHBISHOP'S MAUSOLEUM, SHOWING CRYPTS.



CENTRAL ALTAR AND MURAL PAINTINGS ON THE DOME OF ARCHBISHOP'S MAUSOLEUM.

cornice are the four paintings. The three under the arches are in the style of the mortuary paintings of the catacombs of Rome; the fourth, on the vaulting side of the apses, represents a scene of a Christian in a mortuary place. The central ceiling of the mausoleum, which covers the portion between the burial places, is in mosaics, forming an ornament around the figure of the Lord, representing the center of life and the spring of the four rivers which end in the four gospels, the source of the eternal life, and expressing the resurrection symbolized by the history of Jonas.

The ceiling of the great arch between this ceiling and the paintings of the Christian agape will also be in mosaic, with the coat of arms of the archbishop. On the



ARCHBISHOP'S MAUSOLEUM, MOUNT CARMEL CEMETERY, CHICAGO.

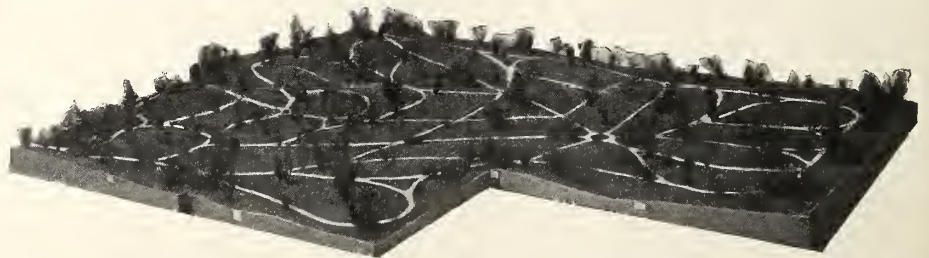
level of the windows, on the sides of the altar, will be six niches with marble statues representing six saints of the church, viz., St. Atanasius, St. Cyrillus, St. Crisostomus, St. Agestinus, St. Ambrosius, St. Francisus, Sal., while on the same level and same spaces over the entrance there will

be six mosaic figures representing the four evangelists, St. Peter and St. Paul. The floor is all in Carrara marble, inlaid in the form generally known as "opus alexandrinum," with small pieces of porfido and serpentino mosaic.

RELIEF MAP OF A CEMETERY

Crystal Lake Cemetery, Minneapolis, Minn., is making a very interesting and successful use of the relief-map of their grounds, illustrated here. This photograph is taken from a papier-mache map 5 feet long by 3½ feet wide, showing the true topography of the 175 acre tract. The original idea of the map was to help the maker in determining how best to handle a very irregular contour of ground. The elevations of Crystal Lake Cemetery run from 149 feet to 212 feet above city level. This rise and fall of the ground comes

quite abruptly. The elevations were located by the usual method of cross sectioning at



RELIEF MAP OF CRYSTAL LAKE CEMETERY, MINNEAPOLIS.



ENTRANCE TO CRYSTAL LAKE CEMETERY, MINNEAPOLIS.

intervals of 100 feet on the regular tracts and every 50 feet on the irregular portions. Various sizes of casing nails were driven to conform to the altitude of these elevations. Galvanized screening was laid on top of the nails and soldered in place. The road scheme, which had previously been determined by survey, was next worked out. Next came the balancing of the rise and fall of ground in regard to roads and drainage, cuts and fills being determined by reference to the field book. Then came the application of the papier-mache veneer followed by a coat of green saw-dust.

The map has proven well worth the effort put forth in making in its suggestive value as to the dirt distribution and general balancing of the entire tract. It was placed in a frame and suspended on hinges from the back which allows it to be raised in a horizontal position when in use. Patrons coming to the office were attracted to the map and, in their endeavors to place locations, the idea suggested itself to the cemetery officers to use the map to show relative values and advantages of different points. This, in turn, suggested the idea of adding some hint of the landscape setting. This attempt is merely suggestive.

It is in order to show Crystal Lake Cemetery in some of its actuality we reproduce a photograph of an interesting view of the grounds. The map has proven very useful in showing the advantage of different locations, especially during the period of deep

snow. Crystal Lake Cemetery has more than 45 acres developed on the modern lawn plan and about 33 acres of this development has been made during the last five years. All the roads are macadam. In addition to special landscape features, the cemetery is covered with a natural forest of giant oaks. It possesses many advantages such as natural drainage which has been improved by sewerage. It is located only 3 miles from the heart of the city at Thirty-eighth avenue North, and Humboldt, on two car lines with a good approach.

The officers of the association are: Walter N. Carroll, president and counsel; Arthur L. Helliwell, vice-president, and E. E. Cammon, superintendent, secretary and treasurer.

CEMETERY NOTES

A Modern Pacific Coast Cemetery.

Tacoma Cemetery, Tacoma, Wash., has recently issued a neatly printed illustrated descriptive book of information, from which we show two illustrations.

Tacoma Cemetery is well located, managed along modern lines and is one of the most beautiful cemeteries on the North Pacific coast. Its good condition is largely due to the fact that all lots now sold include perpetual care and lots formerly sold without care are rapidly being placed under perpetual care by the owners.

All money from the perpetual care of lots goes into the irreducible fund and is invested by the trustees in warrants, first mortgages on real estate and similar securities.

A modern and complete greenhouse has been established.

Burial lots are exempt from taxation, execution, attachment or other claims, liens or processes. The Tacoma Cemetery belongs to the lot owners. The association itself is effectually precluded from doing its business with a view to profit to itself or to its trustees or members. No trustee can receive any compensation for his services as trustee; nor can there be any division or profits among members. All receipts for lots or otherwise must be appropriated to the care and improvement of the grounds.

The irreducible fund was increased by \$12,660.57 during the past year and now amounts to \$144,047.74. There are 343 whole lots and 888 half lots under perpet-

ual care at this time, and 200 select single grave lots.

Seventeen hundred lots were cared for during the past year and 474 interments were made. The expenditures for the year amounted to \$20,406.76.



MAIN ENTRANCE TO TACOMA CEMETERY, TACOMA, WASH.

Following are the officers of Tacoma Cemetery:

President, Charles H. Manley; Secretary and Treasurer, Richard A. Ketner; Superintendent, Thomas Topping.

cessity of incorporating that cemetery, with power to conduct the burying ground and keep it in good condition.

Lot holders in the Odd Fellows' cemetery, Philadelphia, Pa., gained at least a temporary victory on March 19, when Judge Magill, in Common Pleas Court No. 1, awarded a preliminary injunction to Abraham Kohn, restraining the cemetery management from enforcing a rule preventing grave owners from employing their own gardeners. The same rule applied to Mount Peace Cemetery, which is controlled by the same management.

Rabbi Stephen Wise, of Manhattan, N. Y., has taken sides in the crusade started by residents of Queens to make the big cemetery corporations in that borough bear some of the expense of public improvements in their neighborhood and for which up to this time abutting property owners are compelled to bear not only their own share, but also that of the cemetery. A bill to require such payments from cemeteries is now being pushed in the legislature at Albany by Senator Bernard Patten, from Queens.

The Hope Cemetery, Galesburg, endowment fund is growing rapidly and it is

(Continued on page X)



MAIN AVENUE, TACOMA CEMETERY.

TOPICAL INDEX to OUTDOOR LITERATURE

An Index to articles on Gardening, Forestry, Park, Cemetery and Civic Improvement and kindred subjects in leading general and special magazines

Subscriptions will be received for any magazine or periodical at club rates with Park and Cemetery. Publications in which articles appear are listed below, and referred to by abbreviations, thus S. L. 8:67-8, Feb. 09, means: Suburban Life, vol. 8, pages 67-8, February, 1909.

Single copies should be ordered direct from the publications at addresses given below

PUBLICATIONS INDEXED AND ABBREVIATIONS USED

- American Botanist, Joliet, Ill. (A. B.), 75c year; 20c copy.
 American City, The, (Am. C.), New York, \$2.00 year; 25c copy; back numbers, 25c.
 American Florist, Chicago (A. F.), \$1.00 year; 5c copy.
 American Homes and Gardens, New York (A. H. G.), \$3.00 year; 25c copy.
 Architectural Record, New York (Arch. Rec.), \$3.00 year; 25c copy.
 Art and Progress (A. & P.), Washington, D. C.; \$1.50 year; single copy 15c.
 Canadian Florist, The, Peterboro, Ont., Can. (C. F.), \$1.00 year; 10c copy.
 Country Life in America, New York City (C. L. A.), \$4.00 year; single copy, 35c.
 Country Gentleman, Philadelphia, (C. G.), \$1.50 year; 20c copy.
 Century Magazine, New York City (Cent.), \$4.00 year; 35c year.
 Chautauquan, The, Chautauqua, N. Y. (Chaut.), \$2.00 year; 25c copy.
 Craftsman, The, New York City (Cr.), \$3.00 year; 25c copy.
 Embalmers' Monthly, Chicago (E. M.), \$1.00 year; 10c copy.
 Fern Bulletin, Joliet, Ill. (F. B.), 75c year; 20c copy.
 Florists' Exchange, New York City (F. E.), \$1.00; single copy, 5c.
 Florists' Review, Chicago (F. R.), \$1.00 year; 5c copy.
 Fruit Grower (F. G.), St. Joseph, Mo., \$1.00 a year; 10c copy.
 Gardener's Chronicle of America, Jersey City, N. J. (G. C. A.), \$1.00 year; single copy, 10c.
 Garden Magazine, Garden City, N. Y. (G. M.), \$1.50 year; single copy, 15c.
 Gartenkunst, die, Frankfurt, Germany (German), G. K., \$4.00 year; 50c copy.
 Good Roads, New York (G. R.), \$1.00 year; single copy, 10c.
 Horticulture, Boston (Hort.), \$1.00 year; single copy 5c.
 House Beautiful (H. B.), Chicago; \$3.00 year; 25c copy.
 House and Garden, Philadelphia (H. G.), \$5.00 year; 50c copy.
 Independent, The, New York (Ind.), \$3.00 year; 25c copy.
 Landscape Architecture (L. A.), Harrisburg, Pa.; \$2.00 year; 50c copy.
 Minnesota Horticulturist, Minneapolis (M. H.), \$1.00 year; single copy, 10c.
 Moeller's Deutsche Gaertner-Zeitung, Erfurt, Germany, (German), M. D. G., \$3.00 year; 10c copy.
 Monumental News, Chicago (M. N.), \$1.00 year; single copy, 10c.
 National Nurseryman, Rochester, N. Y. (N. N.), \$1.00 year; single copy, 10c.
 Revue Horticole, Paris (Rev. Hort.), French, \$4.50 year; 50c copy.
 Scientific American, New York (Sci. Am.), \$3.00 year; 10c copy.
 Suburban Life, New York (S. L.), \$3.00 year; 25c copy.

Civic Improvement, Home Grounds.

Country School, Transformation of. Illust. Fruit Grower, St. Joseph, Mo. 24: 8-9. April, 1913.

District of Columbia Municipal Affairs: How ought they to be administered? Symposium. Am. C. 8:393-6. April, 1913.

Village Commercial Club, Practical Program of, by Fred M. Hansen. Am. C. 8:397-8. April, 1913.

Gardens and Landscape Gardening.

BillERICA Town Plan, The, by Warren H. Manning. Illust. L. A. 3:108-18. April, 1913.

City Planning Course at University of Illinois, by Charles Mulford Robinson. L. A. 3:97-100. April, 1913.

City Planning Reports in the United States, A Brief Survey of, by Theodore Kimball. L. A. 3:119-134. April, 1913.

Competition, A Wasteful, by Charles D. Lav. L. A. 3:101-107. April, 1913.

Cottage Garden; Is this the Best in America? by W. Miller. Illust. G. M. 17:244-6. May, 1913.

Perennials, Iron Clad, for the Town Garden, by E. McFate. Illust. G. M. 17:180-1. April, 1913.

Publications, Recent, of Interest to Landscape Architects. L. A. 3:139-40. April, 1913.

Rock Garden, A Worth While, by J. M. Anderson. Illust. S. L. 16:333. May, 1913.

Suburban Lot, Planting a, by E. Rehmann. G. M. 17:167-9. April, 1913.

Parks, Cemeteries, Public Grounds.

Bituminous Carpet Surfaces, Limitations in the Use of, by A. W. Dean. G. R. M. 43:196-7. April 5, 1913.

Public Recreation, How to Aid the Cause of, by H. S. Braucher. Illust. Am. C. 8:367-71. April, 1913.

Swimming Pools, Sanitation of, by A. A. Moll. Illust. Am. C. 8:381-6. April, 1913.

Trees, Shrubs and Plants.

Dahlia, Newest Type of, by G. W. Kerr. Illust. G. M. 17:247-8. May, 1913.

Ferns, Propagating, by R. J. Hayden. Hort. 17:514. April 5, 1913.

Insect Pests Most Dangerous to Municipal Shade Trees, by E. M. Swiggett. Am. C. 8:388-90. April, 1913.

Nursery Stock, Buying and Planting, by W. H. Jenkins. Illust. G. M. 17:176. April, 1913.

Roses, Outdoor, by Edwin Jenkins. Hort. 17:511-12. April 5, 1913.

Roses, Loss of Vitality in, by Antoine Wintzer. N. N. 21:134-5. April, 1913.

Rose, A Native Red Bark, as a Hedge Plant, by F. E. Schotzko. M. H. 41: 151-2. April, 1913.

Tree Planting and City Building, by Karl Schroeder. Illust. G. K. (German). 15:105-10. April, 1913.

Reports and Publications Received.

The Massachusetts Forestry Association has just issued Bulletin 103, known as "Progress Bulletin A," giving a list of the local branches, names of officers and statistics of the branches.

The Bulletin of the New York Botanical Garden, Vol. 8, No. 29, March 18, contains reports of the Secretary and Director-in-Chief for the year 1912; of the Assistant Director, the Head Gardener, the Head Curator of the Museums and Herbarium, the Honorary Curator of the Economic Collections, the Director of the Laboratories, the Librarian, and the Superintendent of Buildings and Grounds; schedule of expenditures during the year 1912.

Annual Report of Fairmount Park Art Association of Philadelphia, from Leslie W. Miller, secretary, 320 South Broad street, Philadelphia; containing the forty-first annual report of the Board of Trustees, proceedings of the forty-first annual meeting of the association, and the list of members.

The American Civic Association's Civic Tour of Europe is now assured, and the time of this interesting trip will be devoted to observing the progress that has been made along the lines of city, town and neighborhood improvement coming in contact with the best European municipal practice. The travelers will also enjoy much of the best of general interest that Europe has to offer. Albert R. Green, 31 Trinity Place, Boston, is manager of the Tour Department and further information may be had from him. The American Civic Association has recently issued "Civic Improvement in the Little Towns," a monograph of 28 pages, by Miss Zona Gale, that may be obtained for 25 cents from the association's general offices, Union Trust Building, Washington, D. C.

Bulletin 207, just issued by the Maine Agricultural Experiment Station, Orono, Me., contains notes of some of the more important insects of the year 1912. About sixteen pages are devoted to certain scale insects of Maine, including the European Fruit Scale, San Jose Scale, Rose Scale, Oyster Shell Scale, Scurfy Scale, and Scales common upon elm and maple trees, all of which are illustrated. The Bulletin closes with a summary of a spray test for conifers and a list of recent entomological papers issued by the Maine Agricultural Experiment Station. A copy of Bulletin 207 will be sent to any resident of Maine upon request to Director Chas. D. Woods, Orono, Me. To non-residents of Maine the price is 10 cents, which must be sent in coin or other currency. Postage stamps are not accepted.

The Interstate Chemical Co., of Jersey City, N. J., send an interesting descriptive circular of their Key Brand Weed Killer,

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*Preserves Roads
Prevents Dust~*



Rosehill Cemetery, Chicago, Ill. Constructed with "Tarvia X"

Rosehill Cemetery's Experience

In 1909, Rosehill Cemetery, Chicago, began to construct its roads with "Tarvia X." The work was continued in 1910 and 1911. In the latter year, Superintendent Thomas Wallis wrote:

"We find it (Tarvia) very satisfactory in that it stands the automobile traffic and does away with dust, and there is no mud to contend with in the early spring, as the roads are hard and dry. We expect to continue its use and will extend it on our drives as fast as conditions will warrant."

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The scientific way to build macadam roads for modern traffic is to bind them with "Tarvia X" during construction and maintain the surface with applications of "Tarvia B" and a thin coat of screens about every two years. A road so built and maintained will last indefinitely because in its resisting ability it is thoroughly adequate for modern traffic. A tarviated surface is automobile-proof and waterproof. It drains instantly and even after rain, gives good footing for pedestrian processions.


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Cemeteries, Public and Private Grounds
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EDITORS
John W. Weston **O. H. Sample**
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a concentrated liquid that is claimed to effectually kill weed growth by soaking into the ground, killing the roots, and leaving the ground in a condition that weeds cannot grow. It is effective where weeds are growing through crushed stones, macadamized roads and ordinary roads.

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An abundant supply of water is invariably considered indispensable, but proper means or facilities for dispensing this supply over the large areas of extensive grounds or parks are sometimes neglected. The result is either the unintentional neglect, greatly to their detriment, of parts of the grounds, or laborious, time and money consuming hauling of long stretches of hose. Where there are enough outlets at judiciously selected points, short hose may be used and full advantage taken of the pressure to throw the water as far as possible in all directions. Inexpensive hydrants, easily installed in connection with any system of piping, should be freely used. They will enable the landscape gardener to "feed" his plants abundantly and with the least labor and trouble. A very complete line of hydrants, especially designed for this purpose and very extensively used in private and public parks, cemeteries, etc., are the "Lewis" Patent Lawn Hydrants and Street Washers, made by the Haydenville Co., Haydenville, Mass. The Haydenville Co. has published an attractive booklet describing these useful devices and will gladly send a copy to anyone who is interested.

OUR FRONT COVER PICTURE.

The illustration on our front cover shows a very popular design of iron fence being extensively installed by The Stewart Iron Works Co., Cincinnati, O., to enclose public parks, cemeteries, athletic fields and playgrounds. This is one of their plainer patterns, yet possessing enough of the artistic in finish and general scheme of construction to afford a pleasing relief to the magnificent simplicity of the design.

The fence shown is made of 7/8-inch

(Continued on page VIII)



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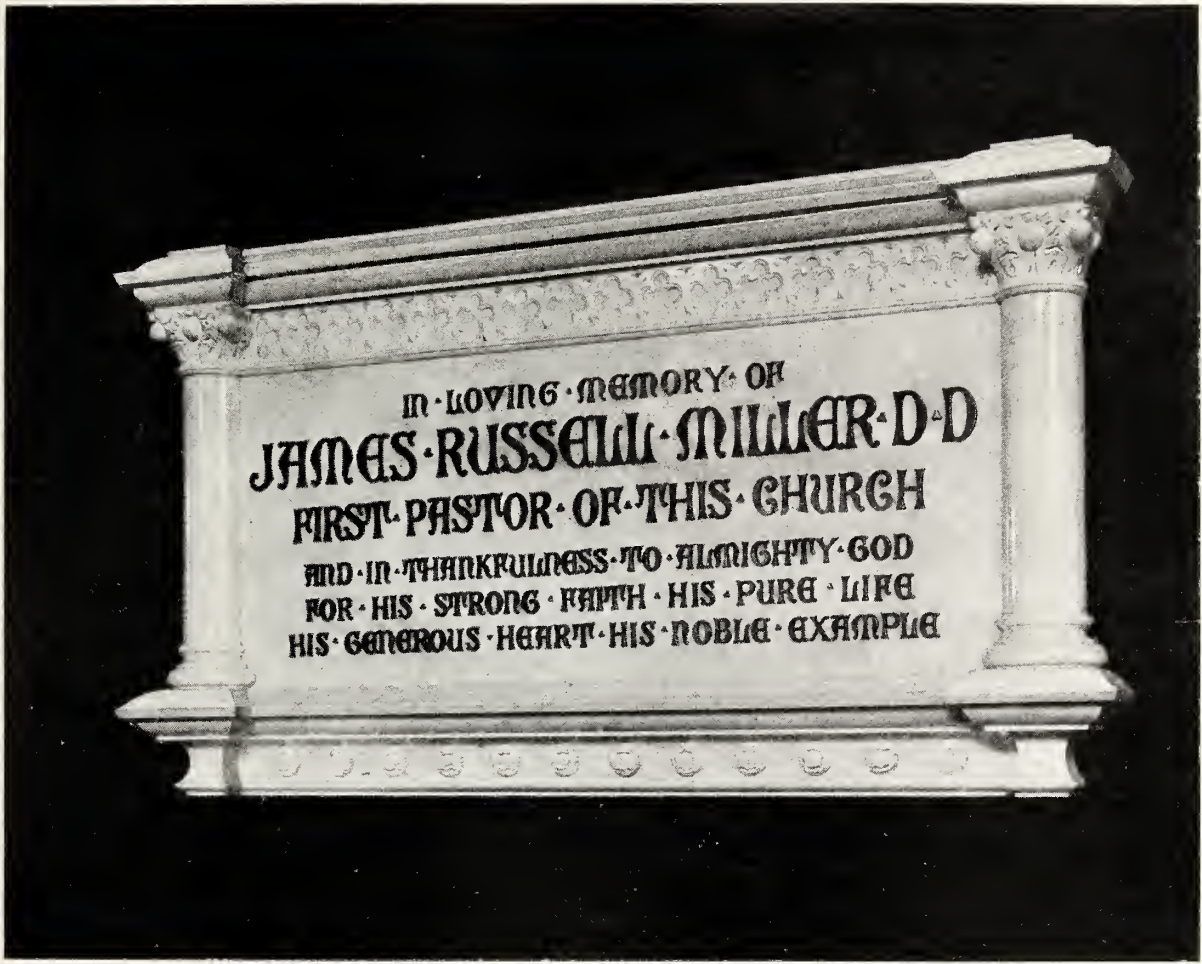
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square pickets, spaced 5 inches on centers, and is 7 feet high, set. Their extra heavy special pattern, $2\frac{1}{4} \times \frac{7}{8}$ -inch patented reinforced four-rib steel channel rail is used in making this fence. Panels are 8' feet long with adjustable center support under each panel, and at end of each panel a 1-inch square line post with fleur-de-lis head is used. This same design, we are informed, can be made in lighter or heavier proportions, just as desired.

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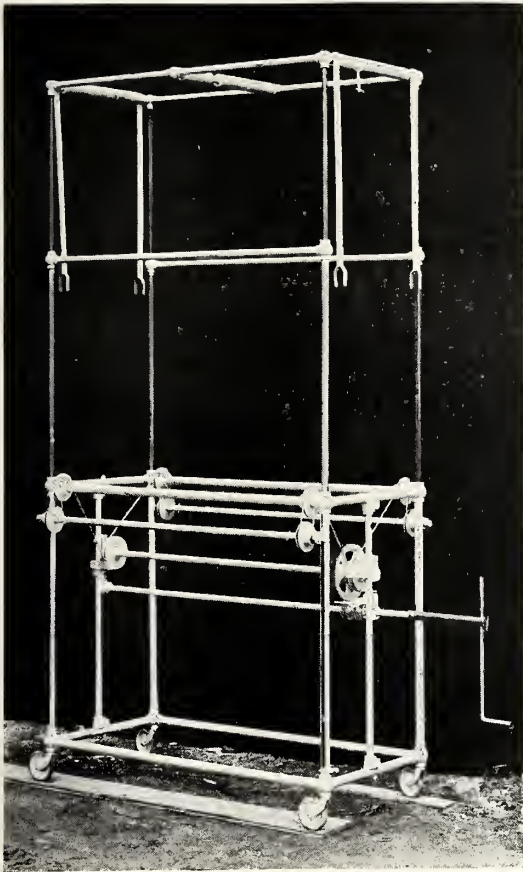
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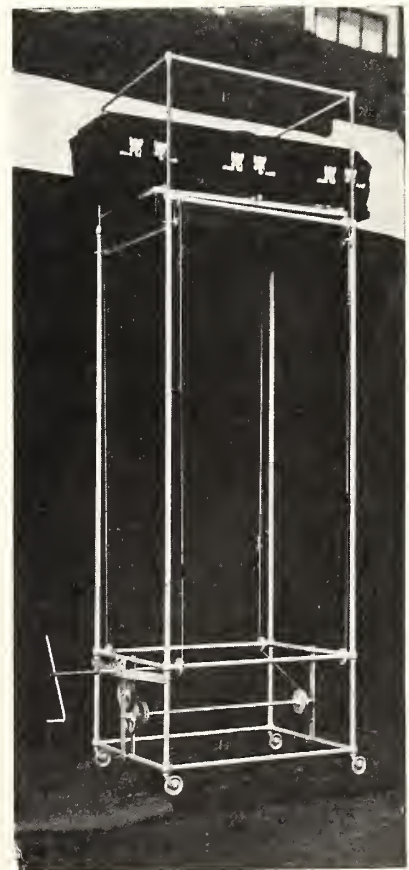
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CEMETERY NOTES.

(Continued from page 63)

expected that the proposed \$25,000 will be reached at an early date. It increased some fifty per cent during the past year.

Elmwood Cemetery, Birmingham, Ala., has in operation a range of greenhouses as well as a nursery for the purpose of furnishing cut flowers, shrubbery, etc., to patrons of the cemetery. Considerable patronage is received from the retail dealers of the city, and the authorities believe that in a short time the business will become a large one.

A certificate of incorporation of the Druid Ridge Cemetery Company, Baltimore, Md., was filed in March in the clerk's office at Towson. Frank Primrose, William A. McLeran and Morris A. Soper are named as incorporators. The object given is to own and operate a cemetery and to deal in real estate or other enterprises. The office will be located in Baltimore county and the capital stock is \$300,000, divided into 3,000 shares. With the acquiring of Druid Ridge Cemetery, which has been purchased by Frank Primrose and others on behalf of the Loudon Park Cemetery Company, the latter will have under its management the largest cemetery property in the United States. Druid Ridge contains 200 acres and Loudon Park 320 acres.

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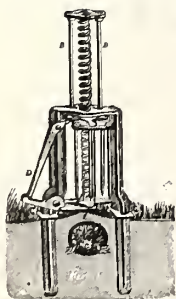
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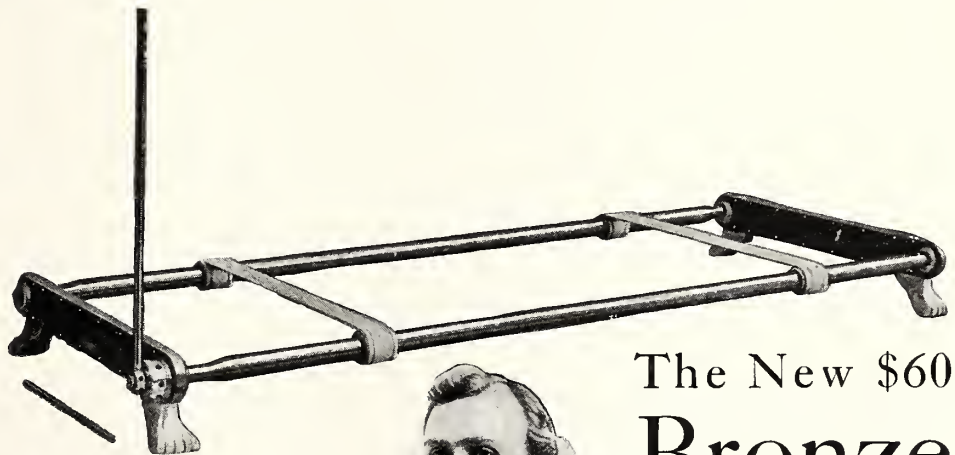
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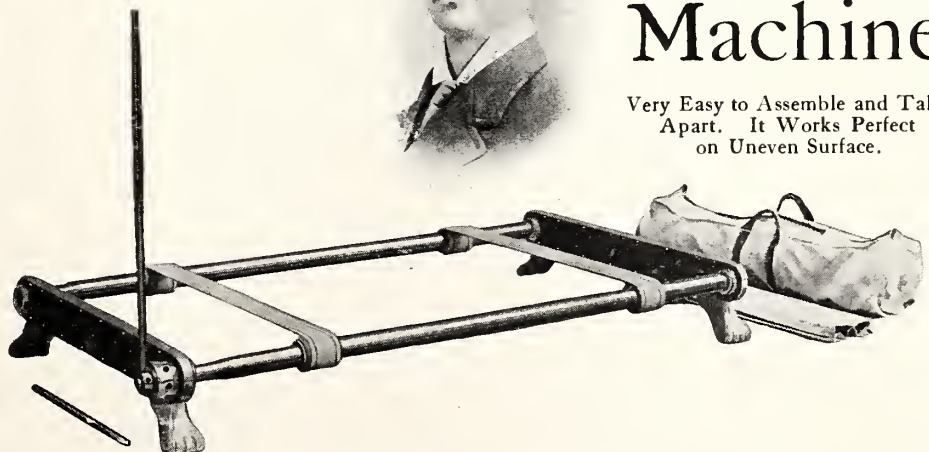
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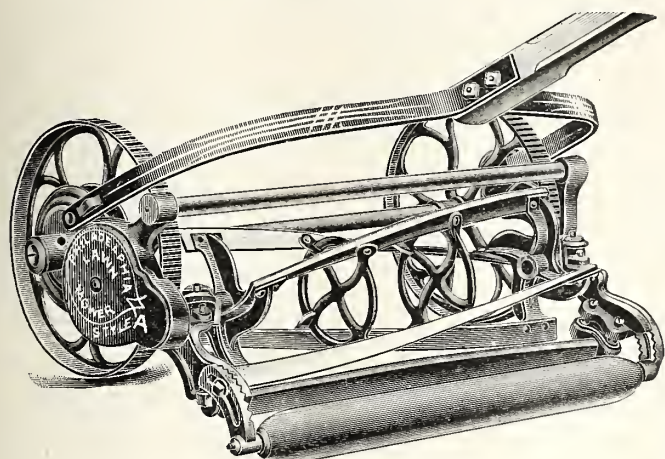
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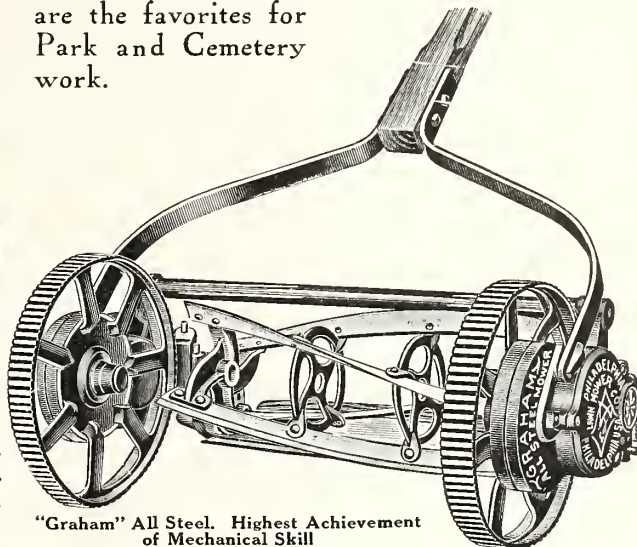


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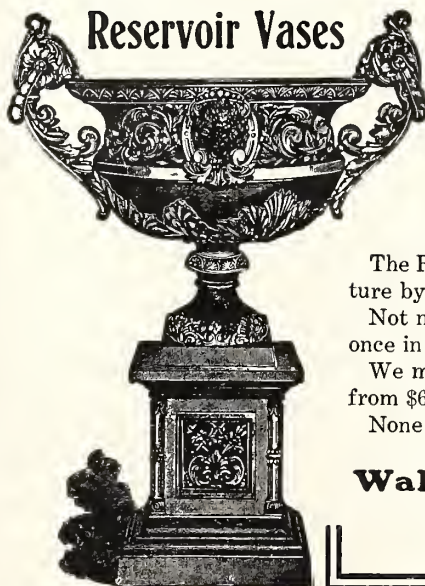
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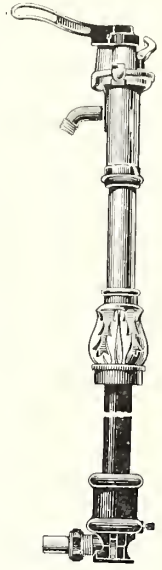
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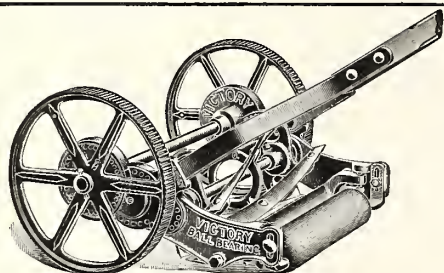
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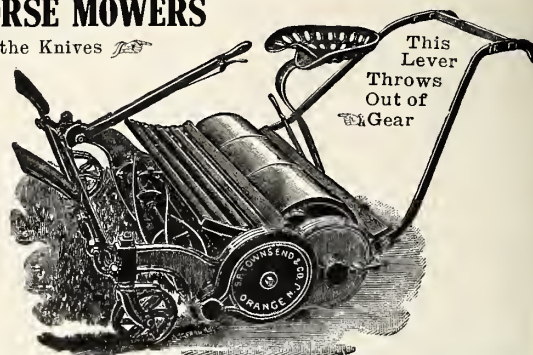


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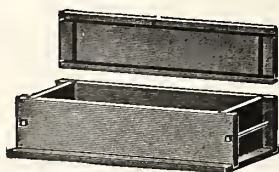
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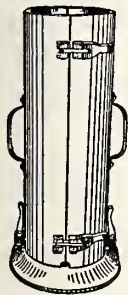
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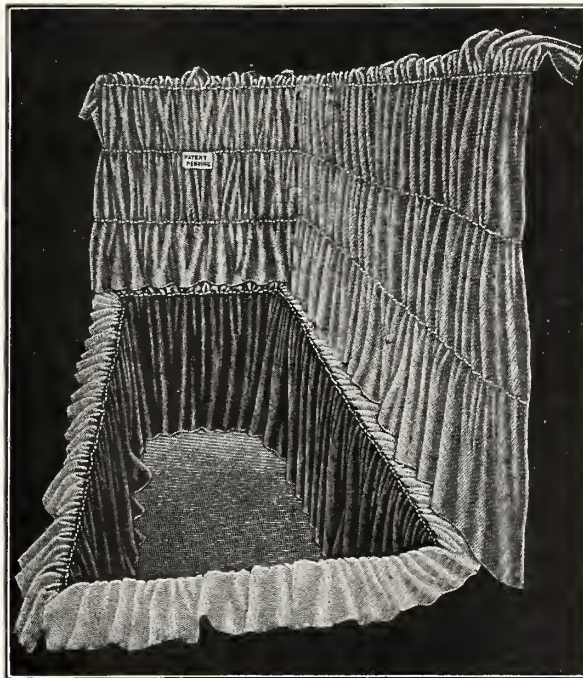
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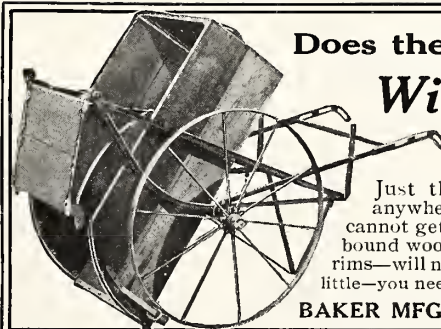
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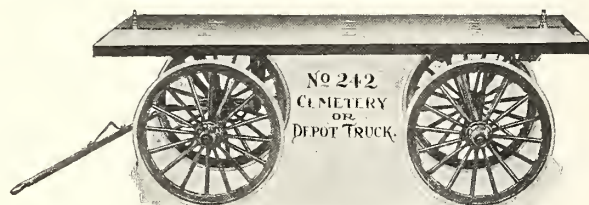
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Vol. XXIII.,

No. 4

JUNE, 1913

PARK AND CEMETERY CONSTRUCTION

Successful Concrete Bridge Building—Plans for Combined Office and
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Water Parkway—A German Urn Burial Park—Practical Types of
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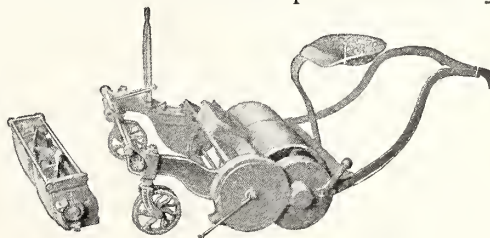
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We have 275 acres devoted to properly growing hardy, ornamental plants. Our large stock of varieties and sizes enables us to deliver orders of large or small proportions at one time, which is a great advantage to the planter.

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Spring Hill Cemetery Association (Adopted our Head No. 3)

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PARK AND CEMETERY AND LANDSCAPE GARDENING

VOL. XXIII

JUNE, 1913

No. 4

EDITORIAL

Reactionary Legislation in Pennsylvania

Pennsylvania cities have always been known as leaders in the work of advanced park and cemetery improvement, so that it is rather surprising that two measures of such reactionary character now before the legislature of that state should be given any consideration at all in such an enlightened commonwealth. The Campbell bill for the repeal of sections of the Act of 1907 allowing cities to condemn and resell property within two hundred feet of parks is before a committee in the Legislature. The bill forbidding cemeteries to exclude outside gardeners from working on the grounds, fortunately defeated, was another example of the present tendency with certain classes of legislators to allow the individual undue freedom in preying upon the public at large. "I do not want Philadelphia to become beautiful at

the expense of an individual," says the man who introduced the Park Bill referred to above. He is, however, perfectly willing that the individual should for his own private gain sacrifice the interests of the entire people and injure the growth of his city. This bill is designed to do great injury not only to Philadelphia, but to every city in Pennsylvania that has a program for park improvements. Philadelphia has spent more than four million dollars on its parkway plan on the strength of the power conferred in the Act of 1907. Eliminating the provision for reselling land that is condemned would make this act largely useless and nullify a large share of the work that Philadelphia has planned. There is altogether too much legislation brewing, allowing the individual to do as he pleases with public property.

Making the Best Use of the Parks

The recent bulletin on Park Utilization issued by the American Association of Park Superintendents shows definitely and forcibly the great increase in the useful activities that are now being conducted by parks. That these services of the parks, which would not have been thought of ten years ago, are meeting a real demand is evidenced by the fact that wherever they are installed they are in immediate use far beyond the capacity of the facilities at hand. In discussing the comparative use of the large landscape reservations and the play or service parks, a Boston paper makes the following interesting comment:

The Metropolitan Park Commission has a very definite idea of its purpose in the economy of things. When asked what the great tracts of land, which the state has set apart to form its park system, are for, the representatives of the commission reply that these tracts are to be kept as nearly as possible in their natural state and are to be open for trampers and picnic parties to use as they see fit, for purposes which are legitimate for trampers and picnickers. The conception which the commission has of its duty to the people does not include opportunities to play the national game, with certain exception, which will be mentioned later, nor does it include the offer of opportunities to play the royal and ancient game of golf. There can be no doubt that when the reservations were

first taken by the people of the state, the conception which prevailed was that which the commission holds today. It is a question, however, whether this is all the people want of the parks. Certain parts of the park system are used to capacity, if not beyond capacity. The beaches are crowded as soon as the weather is warm enough for the bathers. The Charles river basin is becoming a center for water sports. There are a number of boat clubs along its banks, and the canoeing on the upper Charles is increasing. The persons who use the Charles in this way do not for the most part live within walking distance of the river or of the basin. They find they can afford to take long journeys for the pleasure to be had at the end of them. Would not the same thing be true if the policy of the commission were less "constitutional" and more human? To be sure, any such changes would require larger appropriations from the legislature, but the great barrier to such appropriations is not the attitude of the legislature, but the attitude of the park commission.

The whole question is one of policy, in the large sense. There can be little doubt that Boston needs light and air, and that the children of Boston and of closely built sections about it need more chance to play. It is true that such organizations as the Municipal Athletic Association have given an impetus, which is sending many persons on long tramps, but is this to be the chief purpose of the city parks? Should not there be more of an effort made to educate the people in the opportunities which the reservation might offer? And how is it possible that such an attempt can be useful until the park commission becomes sensible that the great tracts of land which belong to the state are not being used to anything like their capacity, even though they are being more used each year?

Cemeteries in Cities

The history of the long drawn out fight that has been made to abandon cemeteries within the city limits of San Francisco points a very instructive moral as to the probable future of many other cemeteries that have been located in closely populated districts in the larger cities. The pressure of the growth of population a number of years ago forced the abandoning of interments in all the cemeteries within the city limits of San Francisco. There are now several bills before the California legislature providing for the removal of bodies from the cemeteries within the city limits that have not been making interments. These bills do not provide for the removal of the cemeteries, but merely are enabling acts to provide a way for the removal of bodies under the direction of the governing powers of the city. There is a

strong fight being made against them and the first of the bills was recently passed in the senate, but defeated in the lower house of the legislature. It is argued by some that the cemeteries ought to be left undisturbed for their sentimental influence over people who may visit them and walk among the tombs of the early settlers of the city. A number of real estate men also spoke in favor of the cemeteries, declaring that the land was not desired for factories or residence purposes or for public buildings or parks and, therefore, it should be let alone. This, of course, is merely a preliminary skirmish for the removal of the bodies. There is no doubt that at some time in the future the growth of population will be so strong around these grounds that they will necessarily have to be abandoned as cemeteries and probably have to be converted into parks or building sites.

SUCCESSFUL CONCRETE BRIDGE BUILDING

The Interlaken Bridge in Seattle.

By H. L. McGillis, Chief Engineer, Seattle Park Commission.

The topography of the city of Seattle is such that engineering problems are encountered of unusual complexity and the construction of a bridge on Interlaken boulevard, over Twenty-sixth avenue N., is an example.

In the platting of adjacent property a contour study was made and streets were laid out on curved lines to fit the ground

and Twenty-fifth avenue N. followed a ravine on a compound curve.

In building Interlaken boulevard a crossing was made over Twenty-sixth avenue N. on a very artistic and substantial rustic bridge, which unfortunately was supported upon a central pile bent and only had ten feet clearance. These defects did not interfere with the little used and partially improved Twenty-sixth avenue N.

Surrounding property developed into a high-class residential district and when the

street was paved in 1912 the Park Board was confronted with the problem of removing or rebuilding its bridge. As the existing bridge was of a construction which prohibited its being raised, and on account of the desirability of maintaining traffic, coupled with the showing that great improvement of alignment could be gained, it was decided to locate the new bridge alongside of the old one.

Surveys were made and plans prepared for a reinforced concrete arch bridge, described briefly as follows: Total length of 84 feet 4 inches, having one central arch of 41 feet clear span, with 9-foot raise from springing line and end walls. Total width of 32 feet 8 inches, covering a 24-foot roadway and walk on the south side.

The railing is of plain heavy posts and panels of fancy rough bricks and plain square openings, the result being very pleasing. Four of the posts were mounted with a single ball cast iron lamp of plain design. In addition to lamps on top, provision was made for placing a cluster of lamps at the center of the under side of the arch to light street below.

The clearance under the arch is 15 feet 6 inches and is ample for modern trucks and moving vans.

The new location necessitated the changing of about 1,000 feet of roadway, both in alignment and grades, with very satisfactory results. It was intended to finish the concrete surface with an acid wash and selected gravel was used with great care in the puddling. Upon stripping a fine finish was left, but acid wash was not used, as it was decided to cover the bridge with ivy, which, with the touch of color on the panels, will, no doubt, make an attractive appearance.

An estimate from finished plans was prepared, based upon the prevailing unit prices of similar work, and totaled \$4,700.

The Park Board's policy and practice being to do practically all of its own construction work, Superintendent J. W. Thompson was directed to build the bridge with crews from the regular park organization.

Following is a summary of actual expenditures. The item of labor is apparently high, due to charter provision which makes a minimum wage on all city work \$2.75 per day, and a special foreman was employed at \$5 per day:

Cost of Interlaken Bridge.

Engineering, \$63.58; labor, \$1,126.83; cement, \$899.25; sand and gravel, \$779.40; lumber, \$307.68; steel, \$262.83; nails and wire, \$25.07; lamps, \$78; pipe and fittings, \$11.20; drain tile, \$7; cartage, \$18; brick, \$37.80; mixer (vent), \$55; mixer (coal),



CONCRETE BRIDGE BUILT BY SEATTLE PARK EMPLOYEES.



DEERING'S OAKS, CONCRETE BRIDGE, PORTLAND, ME.

\$22.10; mixer (transporting), \$12. Total, \$3,816.74, or \$883.26 less than estimated cost if contracted.

The quantity of concrete was 435 cubic yards. For the arch a mix of 1:2:4 was

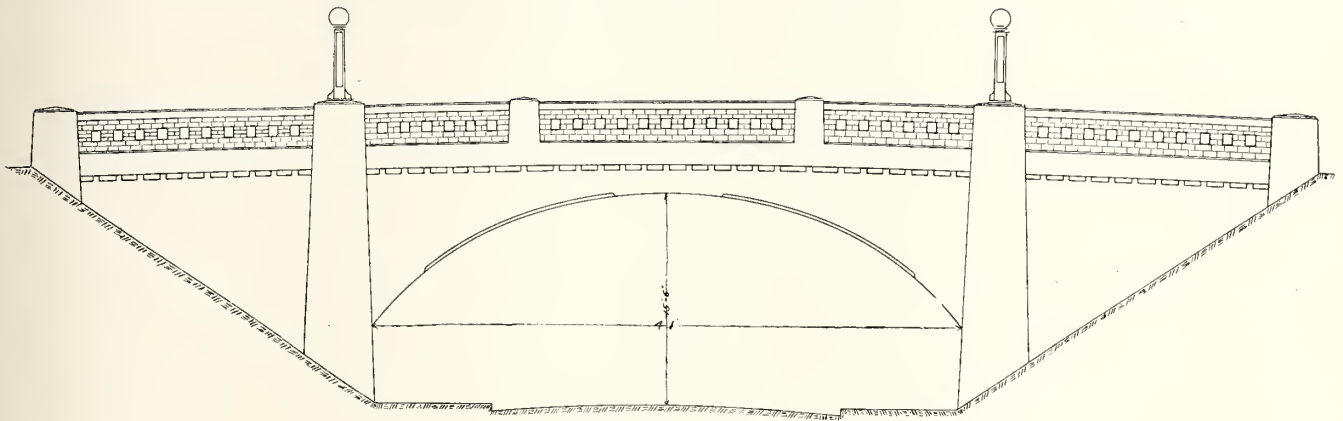
left open under the floor to relieve weight on foundations. Floor slab was reinforced with steel rods and "Hy-Rib." Balustrade rails and posts were poured in place. The entire structure was finished by rubbing

surfaces with carborundum brick. Conduits were placed for electric wiring and lamp posts of special design erected on piers. The work was designed and supervised by Engineer William O. Thompson of the department and built under contract by H. P. Converse & Co. of Boston, Mass. The total cost of the bridge was \$3,547.04.

The concrete for the structure was mixed in the proportion of one part (Alpha) Portland cement, two parts sand and four parts broken stone. For work not exceeding 12 inches in thickness the maximum size of stone used was 1 inch; for work exceeding 12 inches in thickness the maximum size of stone used in concrete mix was $2\frac{1}{2}$ inches. Quarry stone was used in piers and abutments when such stones were completely surrounded by not less than 2 inches of concrete.

The forms were made of planed lumber, tongued and grooved, and all inside surfaces next to concrete were coated with paraffine oil to prevent concrete from adhering to forms when stripped.

Steel used for reinforcement was of square section, twisted cold. Three-quarter inch rods were used in the arch ring,



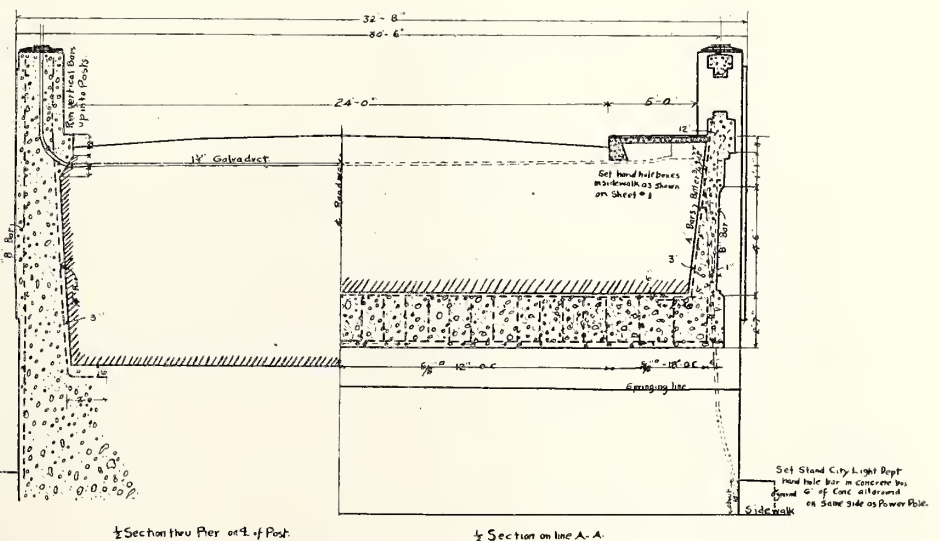
SIDE ELEVATION, INTERLAKEN BRIDGE, SEATTLE.

used, while for the sidewalks this was changed to 1:3:7. The entire mass was left in the forms for sixty days.

About 800 cubic yards of back fill was placed and water settled. This was shipped in by teams at \$6 per day. Final cleaning up and completion will be done this summer at an added cost to figures given of about \$300.

An Interesting Concrete Foot Bridge.

The Deering's Oak bridge in Portland, Me., was built to replace a wooden structure and was designed for foot travel only. The length, including approaches, is 80 feet, with a 40-foot span and a clear width on floor of 8 feet 1 inch. The material underlying the foundation is soft blue clay. The concrete is reinforced throughout and the space between spandrel walls over the arch and in the abutment approaches was



SECTION OF INTERLAKEN BRIDGE.

$\frac{1}{2}$ -inch rods in spandrel walls, and $\frac{1}{4}$ -inch rods in balustrade posts and rails. Floor slab was reinforced with $\frac{1}{2}$ -inch rods and "Hy-Rib." Expansion joints were placed at the shore piers.

After the forms were stripped the concrete was allowed to set from two to three

days, when the surface was wet and rubbed with carborundum bricks. The rubbing will form a plastic mortar which fills the small air holes and leaves the surface uniform in smoothness and color. The floor was given a granolithic surface 1 inch in depth, composed of one part Portland ce-

ment and two parts sand, and marked into blocks.

Steel for the reinforcement and "Hy-Rib" for floor slab was furnished by the contractors, and the carborundum bricks were purchased from the Emery Waterhouse Co. of Portland.

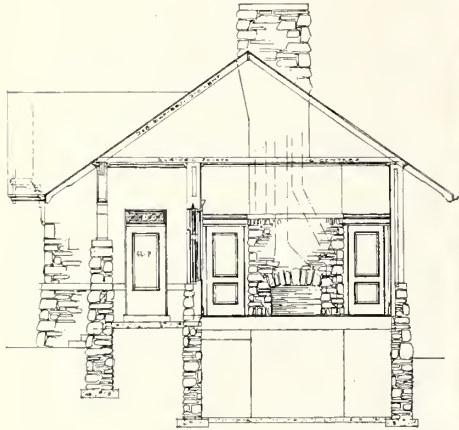
PLANS FOR COMBINED OFFICE AND CHAPEL

The new office and chapel recently erected at Oakridge Cemetery, Marshall, Mich., was built by the cemetery at a cost of \$6,000 complete. This includes the

cludes one and one-fourth acres. It was plotted by the superintendent, J. O. Van Zandt.

The building perhaps looks a little ex-

Gehrke, of Detroit, who have kindly furnished us with plans, elevations and sections that show the design and construction in every detail.



CROSS SECTION, LOOKING EAST, OAK RIDGE CEMETERY OFFICE.

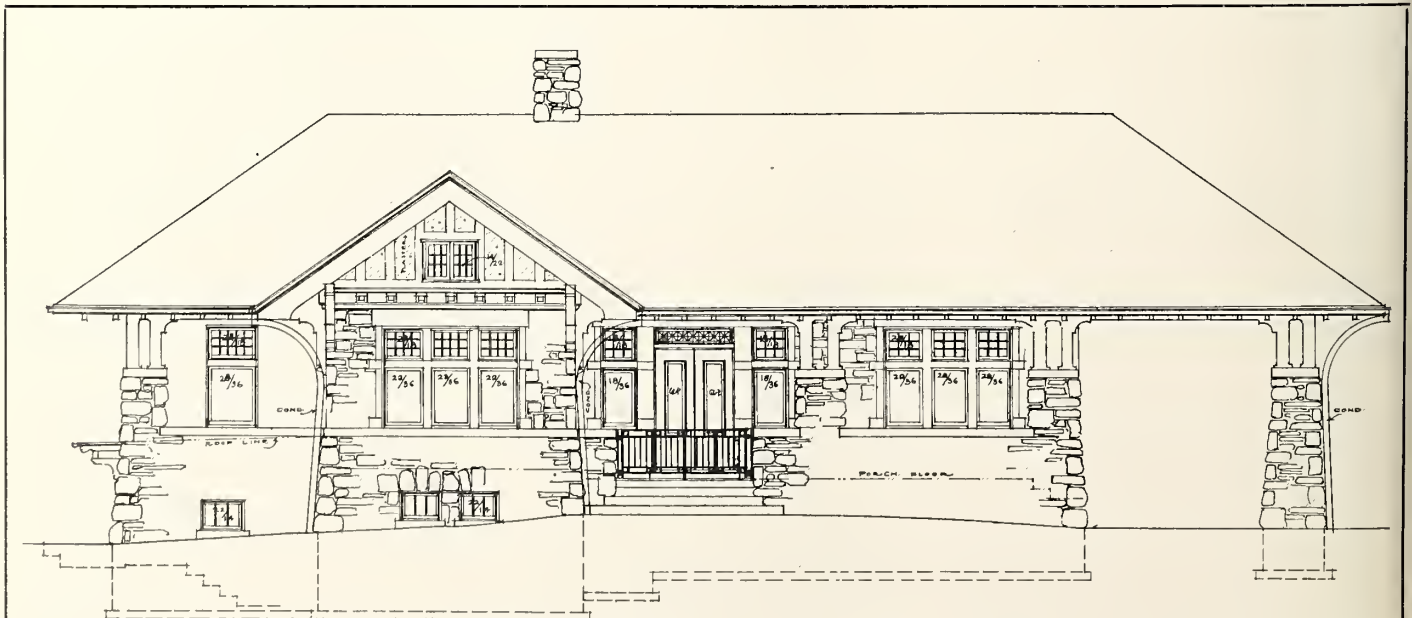


OFFICE AND REST HOUSE, OAK RIDGE CEMETERY, MARSHALL, MICH. SPIER, ROHNS & GEHRKE, DETROIT, ARCHITECTS.

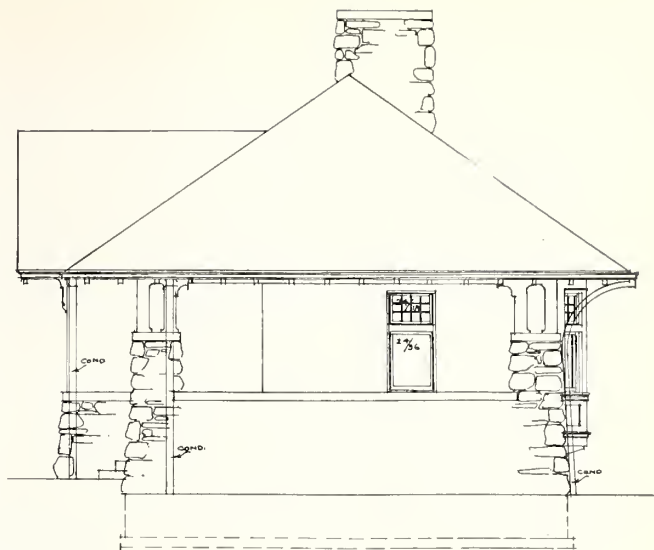
plumbing, furnace, furniture, and lighting. The furniture is of mission style and very massive. There is a beautiful mantel of medium sized selected cobble stone laid in cement, and a fireproof vault for cemetery records. The cement work was all done by the cemetery force, under the supervision of the superintendent. The ground was given by Geo. H. Southworth and in-

posed now, but a little age will overcome this, as the trees and shrubs are all small, being set out this spring before the picture was taken. It was opened to the public last November and since that time it has been very freely patronized. The cemetery board makes no charge for its use if they bury in Oakridge. The architects of the chapel were Spier, Rohns &

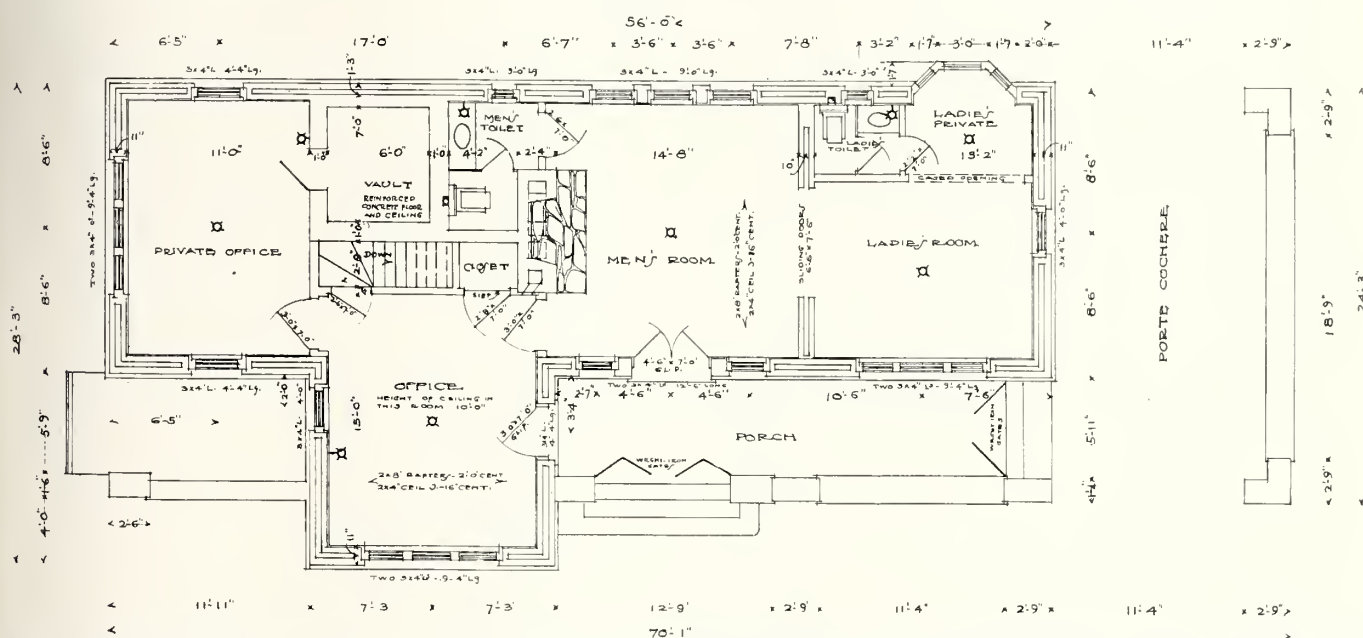
An addition of six acres was recently made to the cemetery and laid out by the cemetery force. All lots are sold under perpetual care, and the effort is made to conduct it on the loan plan as nearly as possible. The perpetual care fund now amounts to \$8,000 and many of the old lot owners are making deposits for the perpetual care of their lots.



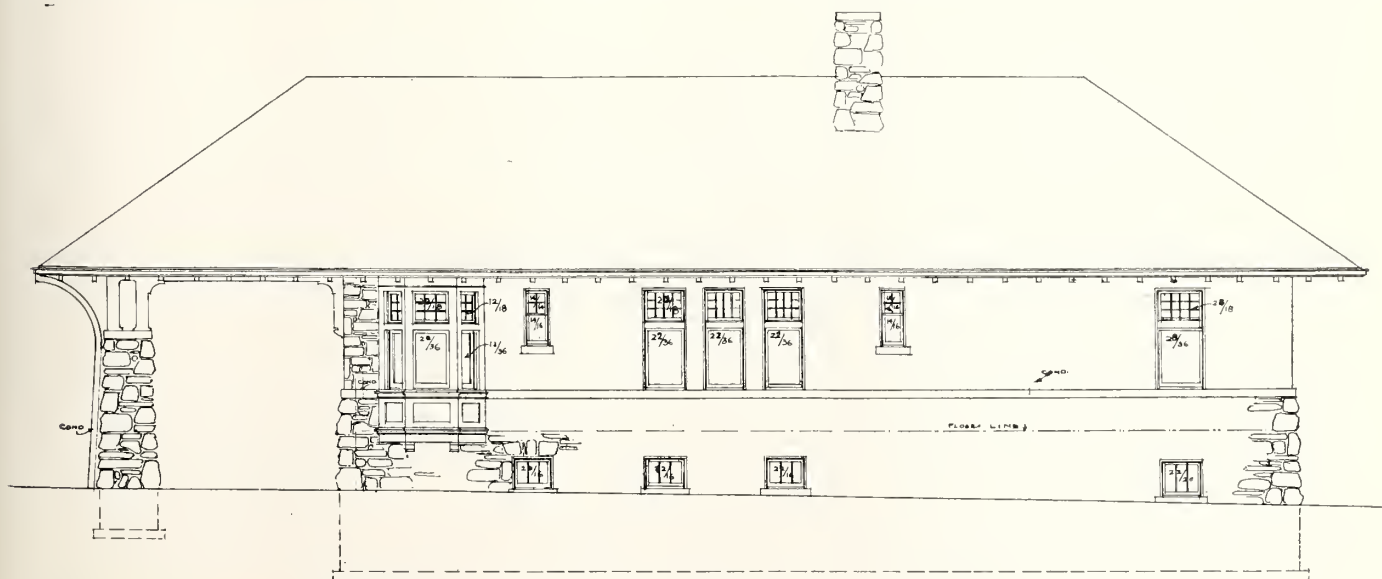
NORTH ELEVATION, OFFICE AND SHELTER HOUSE, OAK RIDGE CEMETERY, MARSHALL, MICH. SCALE $\frac{1}{4}$ INCH EQUALS ONE FOOT.



WEST ELEVATION.

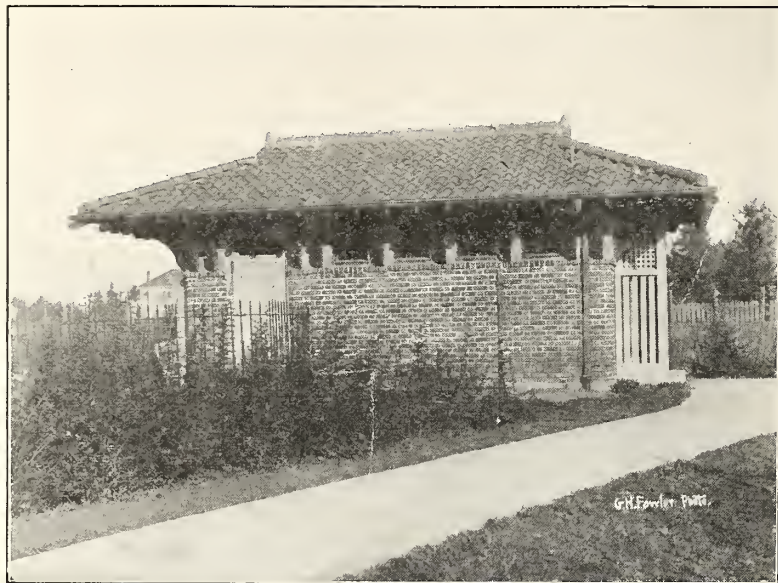


MAIN FLOOR PLAN, CEMETERY OFFICE AND SHELTER HOUSE, MARSHALL MICH.



SOUTH ELEVATION, OFFICE AND REST HOUSE, OAK RIDGE CEMETERY, MARSHALL, MICH.

PLANNING AND EQUIPPING THE COMFORT STATION



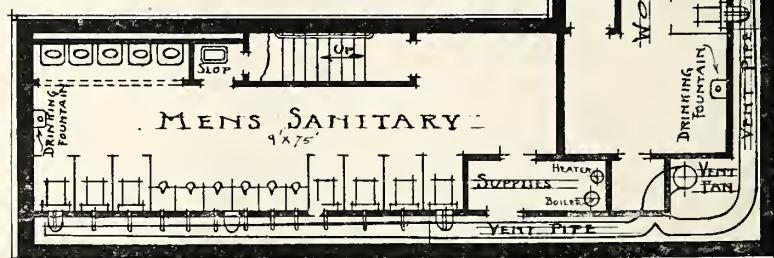
COMFORT STATION IN PENINSULA PARK, PORTLAND, ORE.

The Portland Park Commission has recently built and equipped a number of public comfort stations of appropriate and unobtrusive architecture that are suggestive both in design and equipment of well-planned structures of this character. They were designed by Ellis F. Lawrence, architect, of Portland, who has furnished us with a detailed description of the buildings and their equipment.

The comfort station, at Sixth and Yamhill streets, is built under the sidewalk and contains conveniences for both men and women. Each part has a stairway leading down from the sidewalk. The stairways are protected with shelters constructed of metal, plaster and glass. The men's portion contains space for the plumbing fixtures and a bootblack's stand, a supply closet and a room for the ventilating

UNDERGROUND COMFORT STATION —SIXTH AND YAMHILL STS. PORTLAND, OREGON— ELLIS F. LAWRENCE ARCHITECT

FLOOR PLAN
SCALE



fan and water heating apparatus. The women's portion contains space for the plumbing fixtures and attendants' stand, a rest room and a supply closet.

The walls, floors and stairs are of reinforced concrete, the main partitions of solid plaster and the closet partitions of marble. The walls have a wainscoting of colored tile mosaic six and one-half feet high and the floors and stairs are finished with similar tile. Daylight is obtained through stained glass ceiling lights hung under prismatic vault lights in the sidewalk slab. Electric lights are placed around each panel of ceiling glass, between the ceiling and sidewalk, and so ar-



COMFORT STATION AT KENILWORTH PARK, PORTLAND, ORE.

anged with reflectors that an even distribution of light will be thrown through the stained glass.

The men's portion contains seven closets, five urinals, five lavatories, a drinking fountain and a slop sink. The women's portion contains eleven closets, five lavatories, a drinking fountain and a slop sink. Three men's and four women's closet stalls are arranged with doors that open by placing a nickel in the slot. All other closets are free. One closet in the women's portion is a low pattern for children's use. All the closets and urinals are of the latest vented type. Each of the local vents is connected into a system of galvanized iron ducts behind the partition, leading to an electrically driven exhaust fan which discharges the air up through an ornamental cast iron shaft some thirteen feet high located on the sidewalk. This shaft has four continuous stream drinking foun-

tains in connection with it, for the use of the passersby. The lavatories and slop sinks are provided with hot water as well as cold, the water being heated by an automatic gas water heater in connection with a storage tank.

Peninsula Park has two separate buildings, one for men and one for women. Both buildings are alike, except the plumbing fixtures. The plan provides a main room, a vestibule and a storage closet. Two entrances are provided, one opening to the playground and one to the park. A terrace with seat is provided across the end toward the playground.

The walls and partitions are of brick and the roof of red Spanish tiles. The exterior walls show red brick laid in Flemish bond up to the window sills and rough cast plaster between the windows. The windows are latticed and contain no glass, thereby affording ample ventilation. The roof has a very wide overhand sheltering the windows. The exterior woodwork is stained a soft brown. The interior is plastered smooth, with all corners rounded for sanitary purposes and there is no interior woodwork except the doors. The men's building contains five closets, five urinals and a wash sink. The women's building contains five closets and two wash sinks.

The comfort station in Kenilworth Park is built into a side hill, so that the floor

is on a level with the playgrounds and the flat roof is on a level with the upper ground, thus forming a terrace overlooking the playgrounds. The building con-

porch extends across the front and end of each sanitary, the women's porch connecting with the shelter.

The walls are of red brick with stone



COMFORT STATION AT COLUMBIA PARK, PORTLAND, ORE.

tains sanitarics for both men and women, being separated by a large covered shelter which is for the women's use only and is shut off from the men's end. A stair leads from this shelter up to the higher ground level. The men's portion has a separate stair at the end of the building, leading to the upper level. A covered

trimmings, and the floors, roof and stairs of reinforced concrete. The men's sanitary contains four closets, two urinals, a wash sink and a slop sink. The women's sanitary contains four closets, a wash sink and a slop sink. Ventilation is provided through the windows.

(Concluded on page X)

BUILDING A WATER PARKWAY IN A CITY RAVINE

Waterway Park, in Kansas City, Kan., is an interesting example of the improvement of a valley within a city.

This deep ravine or valley was once on the western boundary of the city, but with the westward growth of population, the business district is now within a short distance. Minnesota avenue, the principal street of the city, crosses the valley at the centre of the present park.

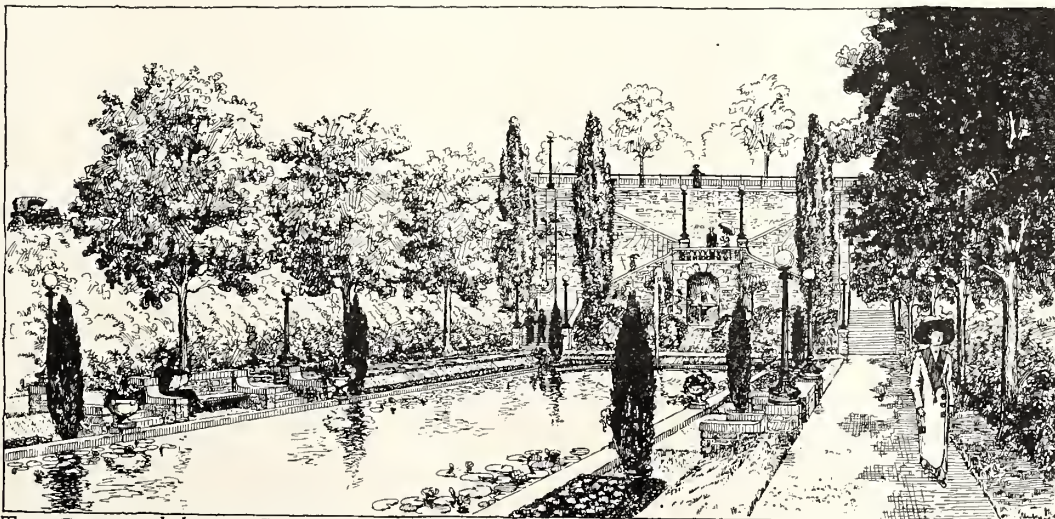
The land in the valley was not suitable for building purposes, and presented an obstacle to the development of the surrounding ground. The filling of the east and west streets formed three lakes, fed by large springs which give a constant supply.

The valley for more than a half mile was acquired for park purposes at a reasonable figure, and now forms the very

centre of the future park system, a water parkway connecting two important boulevards.

The planning for the beautification of this property became the problem of Hare & Hare, of Kansas City, Mo., landscape architects to the park department of Kansas City, Kan.

The two largest lakes offer many opportunities for naturalistic development,



THE SUNKEN WATER GARDEN
WATERWAY PARK, KANSAS CITY, KANSAS

HARE & HARE, LANDSCAPE ARCHITECTS
KANSAS CITY, MO.



THE WATER GARDEN COMPLETED, BEFORE PLANTING.

with large masses of suitable trees and shrubs on the shores and steep banks, and glimpses of the water from the bordering park roads. Many native plants now growing on the banks will be preserved. Hardy nymphaeas, nelumbiums, and other aquatics will be naturalized in large masses in the shallower portions of the larger lakes. The lower and largest lake will soon be made available for boating and bathing.

The central and smallest water area, and also the most difficult to treat, was the pool to the north of Minnesota avenue and 30 feet below that street. It was decided, because of the opportunities and the relation to the important street, to develop it into a formal sunken water garden, with a pool for the display of hardy and tender nymphaeas as well as bedding plants surrounding the pool.

This pool and surroundings cover an area of 290 by 125 feet. The photos show the site before beginning and during the con-



WATER GARDEN UNDER CONSTRUCTION, SHOWING WATER LILY BEDS.



THE SITE OF WATERWAY PARK, AN UNSIGHTLY HOLE.

struction, which was supervised by L. H. Ellis, engineer for the park department,

and the landscape architects. The planting is being done this spring. An accurate idea of the result when all the trees, shrubbery and aquatics are established may be had from the original pen rendering.

A GERMAN URN BURIAL PARK

Although for a long time past the placing of urns on covered and uncovered graves in rows and proprietary burial plots was allowed at the cemetery at Erfurt, Germany, it was not until 1908 that, owing to the increasing demand from year to year, special locations for urn burial places were provided. In the year 1905 there were five, and in 1911 as many as 51 urns or ash receptacles installed, either above ground or underground. According to their position and arrangement, the urn sites were distinguished as follows: First, urn places $3\frac{1}{2} \times 4$ feet in the park for two ash receptacles; second, so-called hedge niches $5 \times 5\frac{1}{2}$ feet in extent, for two ash receptacles; third, graves in rows, of the size of half and whole graves, with attractive conifers and shrubs, for two or four receptacles.

The park sites, scattered through the old conifer plantations, are beautifully located and find great favor like the others, even among those who do not believe in cremation. The urns installed are of natural stone or bronze. The base of the monu-

ment is also only of natural stone. In the beautiful conifer plantations they prove very effective. The planting and maintenance of these places can be provided only by the cemetery management. It is permitted to exceed the above mentioned superficial area for the better arrangement of these park urn sites. In one illustration we see a monument in shell lime with bronze relief, which, with surroundings of conifers and barberry, has a particular restful effect. To the left, low bush asters are to be seen, in front of the monument white variegated abutilon, "Memorial of Bonn." A few ferns, sparsely distributed in the grass, and *Hypericum Moseianum* complete the picture. The illustrations show that these park sites are located easy of access and that lying as they do somewhat remote from the main routes of travel, they afford the visiting relatives, etc., the greatest quiet.

The hedge niches consist of old *Thuya occidentalis*. The background consists of a hedge planted many years ago, that has in the meantime reached a height of five

feet. The intervening walls are thus far only 36 inches high. Owing to the comparatively large space, an attractive horticultural arrangement is possible, as shown in our illustration of the hedge niches.

And finally, that graves in rows in the frequently beautiful surroundings of old conifers, are admirably suited for urn locations, is shown to advantage in the "Anna Kreyssig" plot. Here an old *Thuya occidentalis* is selected as background for the monument, against which the light colored shell lime shows up admirably. The groups planted in front of the stones include ivy (for clothing the monument in green), rhododendron, *Iris germanica*, *Hemerocallis flava* and each a clump of tall asters for autumn decoration in loose arrangement, and they are enclosed by *Iberis sempervirens* white dwarf. The flowering plants that last but a short time can be replaced as desired by others, according to the season.

W. Lentzke, city cemetery inspector of Erfurt, gives us the above interesting details and pictures.



URN MEMORIAL IN ROW BURIAL PLOT IN ERFURT CEMETERY.



HANDSOME TYPE OF URN MONUMENT IN A PARK LOT IN ERFURT CEMETERY. Weeping willow, Thuya, and barberry, in the foreground; shrub asters, abutilon, ferns and Hypericum Moserianum, the other planting.



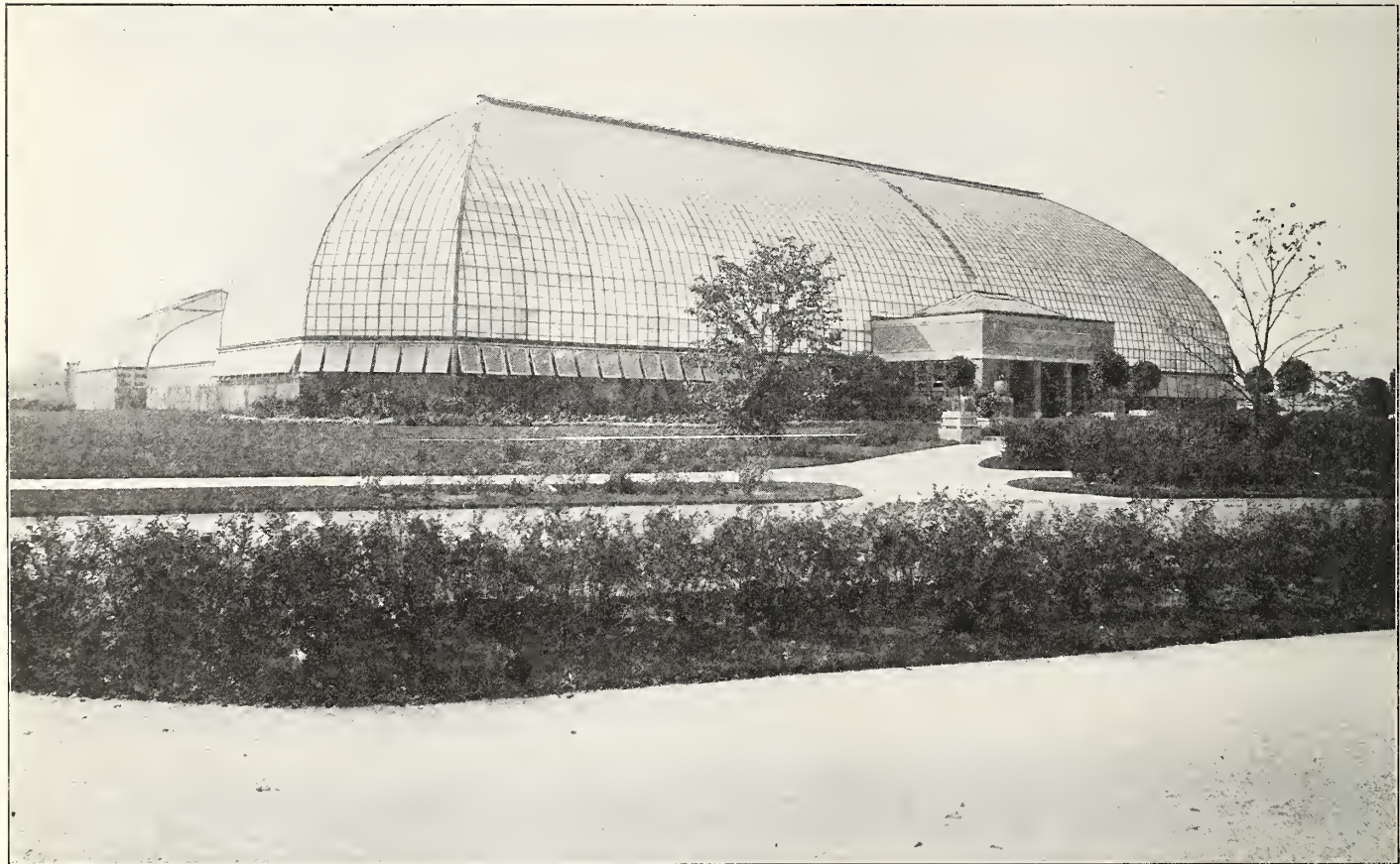
HEDGE NICHES AND URN MONUMENTS IN ERFURT CEMETERY.

THE BIGGEST PARK CONSERVATORY IN AMERICA

The new conservatory in Garfield Park, Chicago, probably the largest of its kind in this country, is interestingly described in the last report of the West Park Commissioners. This report, just recently issued, is among the handsomest and most carefully compiled park books ever issued in this country and contains a mine of valuable data about the West Park system, beautifully illustrated and interestingly presented. It is a book of immense value to

may be found over one hundred varieties of evergreens. In the Economic House are the lemon, fig, orange, bay trees, pomegranate, olive, pineapple, papaw, banana, coffee, mango, vanilla, hemp and many others. Exhibits or flower shows are given by the board periodically at the conservatory for the benefit of the public. They are especially well patronized by school children. The first midwinter flower show ever held in this city was given by the

Some reference to the building in which these plants are housed may be of especial interest here. Plans were prepared by Hitchings & Co., of New York City, special architects of greenhouse construction, in 1906. The building was completed in 1908. Eleven propagating houses and a large potting shed were constructed north of Lake street. These houses contain approximately 30,000 feet of floor space and are models of their kind. The old propa-



CONSERVATORY, GARFIELD PARK, WEST PARK SYSTEM OF CHICAGO.

the student of park affairs and is so edited and prepared as to be of surpassing interest and educative value to the public. The book was edited for the commission by Pearl A. Power.

We shall present in succeeding issues other matter from this interesting report.

The new conservatory was completed in 1908. It includes Palm House, Aquatic House, Show House, New Holland House, Conifer House and Economic House, and answers every requirement of the Park System in this direction. Plants from tropical and sub-tropical countries are on exhibition at all times. The collection of plants, flowers, trees and shrubs is one of the finest in the country, the most rare and beautiful specimens having been secured, these being of botanical and educational interest and value, as well as pleasing to the eye. In the Conifer House

Park Board on December 19, 1909. The conservatory was open to the public for four weeks instead of two, by reason of the popularity of this exhibit. Since that time, Easter exhibits are regularly given; also chrysanthemum and midwinter shows, and any other special exhibits that the Board thinks may be of interest to the public.

The following data and general dimensions pertaining to the conservatory are given for convenient reference:

	Height.	General Dimension.	Floor Area Sq. Ft.	Cubical Contents in Cu. Ft.	Glass Area Sq. Ft.	Steam Radiat'n.
Palm House	60'	85' x 256'	20,450	781,000	29,400	8,384
Aquatic House	35'	112.5' x 150'	16,680	352,800	16,720	4,935
Show House	30'	50' x 132'	6,600	158,400	10,650	2,318
Stove House	30'	50' x 132'	6,600	158,400	10,650	3,112
Conifer House	38'	65' x 86'	5,462	167,700	9,030	2,562
New Holland House	38'	65' x 86'	5,462	166,700	9,030	3,124
Economic House	30'	50' x 97.5'	4,875	115,260	8,500	1,583
Front Vestibule	16'	27' x 38'	1,026	17,200	500	480
West Vestibule and Toilets..	10'	25' x 36'	900	9,000	220	240
Totals .....	..	.....	68,055	1,927,400	104,700	26,738

gating houses were torn down and the plants removed to the new buildings. Suitable planting was provided to screen these houses from the street. A large concrete tunnel was constructed to carry the steam heating pipes from the power house to the conservatory and the propagating houses.

The conservatory proper is located near the main boulevard, the transportation facilities being excellent. An addition has since been built for public lavatories.



SHOW HOUSE, GARFIELD PARK CONSERVATORY, CHICAGO.



FERNS IN AQUATIC HOUSE, GARFIELD PARK CONSERVATORY, CHICAGO.

PRACTICAL TYPES OF RECREATION BUILDINGS

By Roland Cotterill, Secretary Seattle Park Commission.

The problem of providing a substantial yet economical field house or recreation building for use as a social center or in connection with a public playground is one which is confronting many small towns and cities that have observed the wonderful success of such institutions in Chicago and other large cities and desired to in a measure keep pace with the present day move-

ment to provide modern recreation facilities.

The matter of expense, both in construction cost and in operation, has been a barrier to many cities which have been ambitious to provide such buildings, but it has remained for Seattle, the thriving young metropolis of the Pacific Northwest, to demonstrate that a modern field house,

practical in design and economical in operation, can be constructed for considerably less than one-half of the cost generally ascribed to such buildings and yet be institution which will meet the requirements of the average community.

In 1911 the Seattle Park Commission sent Superintendent J. W. Thompson and Secretary Roland Cotterill on an inspection trip to about fifteen American cities, to particularly study field house buildings and bath houses, and the result of their investigation has been embodied in the construction of the Seattle type of field house and the bath house at Alki Beach.

These men were greatly impressed with the diversified facilities provided in the elaborate system of recreation buildings in Chicago, but, of course, smaller cities lack the means to provide such luxurious institutions, hence a modified type of building, embracing practically all of the features of the Chicago buildings, was worked out with Director of Playgrounds J. H. Stine and Bebb & Mendell, local architects, resulting in a practical, economical and serviceable field house which can be constructed and equipped for \$25,000, or about one-fourth of the cost of the Chicago buildings.

Four buildings of this type have been constructed in Seattle within the last year and various authorities who have inspected them pronounce them model structures for the average city which desires an economical yet serviceable social center building.

These buildings are of heavy frame, slow-burning construction, with ornamental plaster exterior, two stories and basement, the general dimensions being 50x50 feet, exclusive of vestibules, porches, etc. In the basement are located boiler and fuel rooms and storage, while in opposite wings of the building are the locker rooms and shower baths for both men and women. On the main floor the central section is taken up with the general social hall and game room, with supervisors' office facing thereon and stairways to the upper story leading out on either side. On each side of the social hall, occupying opposite wings of building, are a group of club rooms for the various civic, social and educational organizations which develop in connection with social center work, there being separate quarters for men and women, although all of the rooms of the lower floor, by a system of sliding doors, may be used together for any large function. The entire upper floor is given over to a combination gymnasium and auditorium, with a stage at one end, with regulation proscenium arch and full scenic and electrical equipment. Sep-

BALLARD PLAYFIELD



PLAYGROUND RECREATION BUILDINGS



HIAWATHA PLAYFIELD

arate stairways lead from each end of the gymnasium direct to the locker and shower rooms in the basement.

Gymnasium classes for people of all ages are conducted each weekday afternoon and on four evenings, two evenings being assigned for assembly purposes or social functions, and men and women and boys and girls utilize the gymnasium on alternate days. The combination gymnasium-auditorium is the feature which brought about the big saving over the Chicago type of building, which has separate gymnasiums for boys and girls, as well as a separate assembly hall, and while, of course, the separate units are preferable, a small city can successfully operate and meet the requirements of its citizens by the combination arrangement and a substantial saving can be made both in initial cost and in operation. The operating force of this type of building consists of two janitors, two supervisors (man and woman), one special gymnasium instructor, one office attendant and one pianist, a total of seven people, a mere "skeleton crew" compared with the corps of people required to operate some of the Chicago buildings, although practically all of the facilities of

the Chicago type of building are provided on a smaller scale.

The Seattle buildings are attracting a

great deal of attention and will undoubtedly be patterned after in various other cities.



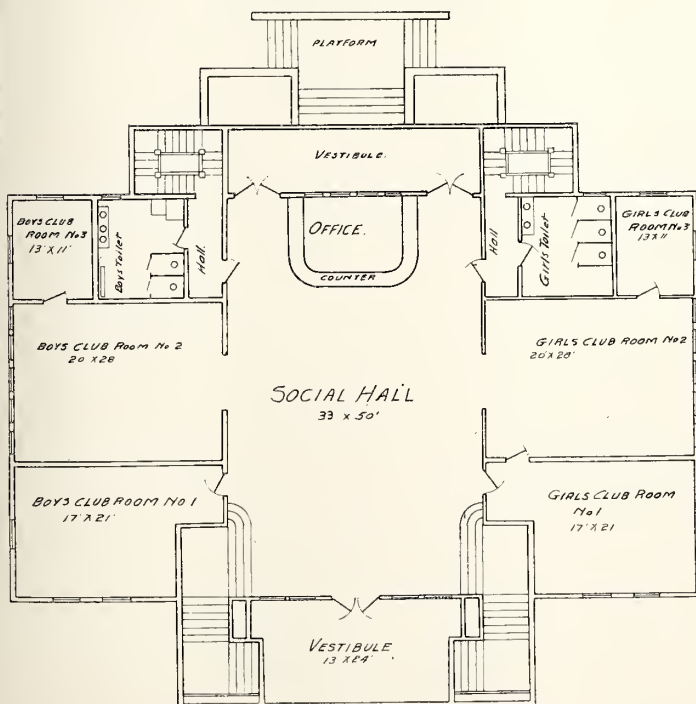
SOUTH PARK FIELD HOUSE, SEATTLE.

COLLINS FIELD HOUSE

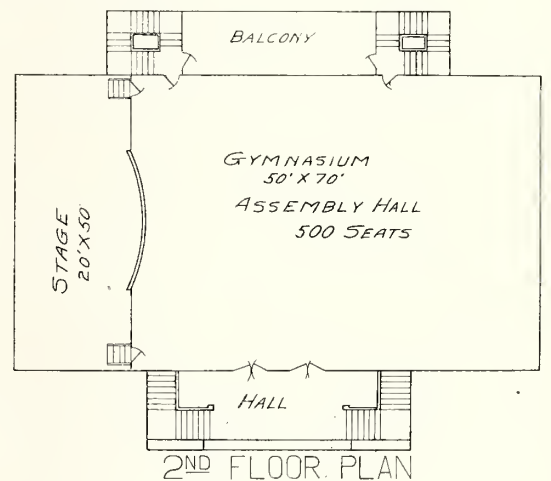
PARK DEPARTMENT SEATTLE
OPENED 1913 COST \$22,800.00

J.W. THOMPSON.
SUPT. OF PARKS.

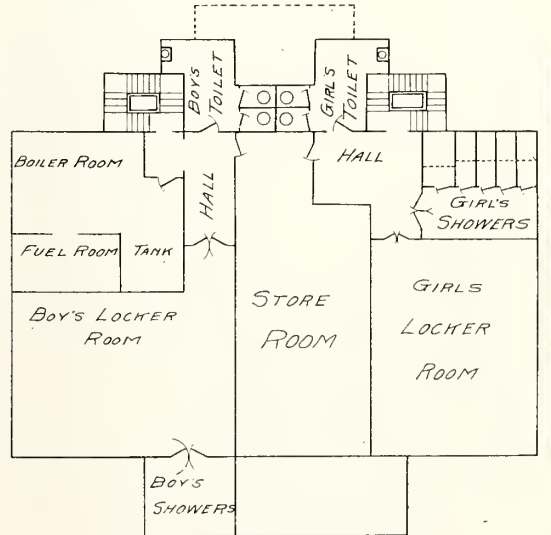
MAIN FLOOR PLAN



TWO STORY FRAME AND BASEMENT
OUTSIDE PLASTERED, PEBBLE DASH FINISH.



2ND FLOOR PLAN



BASEMENT PLAN

ASKED AND ANSWERED

An exchange of experience on practical matters by our readers. You are invited to contribute questions and answers to this department

Cost Accounting Forms for Cemetery.

Can some member of the A. A. C. S. give me a system of cost accounting for a medium sized cemetery of about fifty-seven acres?—L. C., Iowa.

I am sending under separate cover some of the blanks which we use for distributing our costs. The various foremen

DAILY REPORT

MAINTENANCE DIVISION NAMES	Buildings	Avenues and Paths	Grass	Regrading	Monuments	Interments	TOTAL HOURS	DATE PER HOUR	AMOUNT
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
TOTALS									

I HEREBY CERTIFY THAT THE ABOVE ACCOUNT IS CORRECT.

NAME

DATE

Make report of work done and material used on back of this slip.

DIVISION REPORT CARD OF FOREST HILLS CEMETERY.

keep the daily time cards, which are turned into the office every day, and a summary is made on the white sheet under the various divisions as noted. We also have a stock room and keep a correct account of all materials which are given out to the various departments, and in this way we are able to keep a very accurate account of all our costs. Day by day these are recorded in a distribution book which has the various divisions corresponding with the white sheet. We also have an income book, so that we keep a ledger account of each kind of work. At the end of each financial year we distribute general expenses, as office and stable, on a percentage basis to the various other divisions. In this way we come, we think, very close to our actual costs. HENRY S. ADAMS,

Supt. Forest Hills Cemetery.

Jamaica Plains, Mass.

One of Mr. Adams' cards for the daily

report of the "Maintenance Division," reproduced here, is 4x8¼ inches in size, and the headings for the items recorded may be seen in the reproduction. Cards of

SUPPLIES NEEDED

FOR	
DATE	SIGNED
RECEIVED	SIGNED
ENTERED	DIVISION

FOREST HILLS CEMETERY (Requisition for supplies)

REQUISITION CARD OF FOREST HILLS CEMETERY.

the same size, but of different colors, are also used for the Landscape, Construction, Gardening, Interment and Teaming Divisions. The items listed on the Landscape Division card are nursery, moth work, spraying, trimming, cultivating, preparing and planting. The Construction Division

and the Teaming Division card bears the following headings: Construction, care, interments, manure, stable.

REPORT OF LABOR.

For

OFFICE.	
Wages	
INTERMENTS.	
Brick Graves	
Earth burials	
CONSTRUCTION.	
Avenues and paths	
Trenching	
Miscellaneous	
STABLE.	
Wages	
MAINTENANCE.	
Buildings	
Avenues and paths	
Grass	
Tools and imps.	
Vehicles	
Miscellaneous	
SPECIAL.	
Foundations	
CARE.	
Grass	
Regrading	
Monuments	
Bedding	
Myrtle	
Miscellaneous	
GARDENING.	
Greenhouses	
Bedding	
Trees and Shrubs	
Moth Work	
Miscellaneous	
TOTAL	

Signed

SUMMARY LABOR REPORT, FOREST HILLS CEMETERY.

Name

Interments	Foundations Etc.	Lawn Mowing	Watering	Sodding	Planting Myrtle	Bay-tree Mowing	Work on Roads	Permanent Implants	Horse Wagon and Harness	Water Supply	General Work on Ground	Total
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
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21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
TOTAL												

TIME CARD OF WOODLAND CEMETERY, DAYTON, OHIO.

The white card used as a summary of the various division cards, and the requisition card are also produced.

I enclose one of our time cards which I keep to make a cost account. Materials, etc., are charged up to their respective accounts and take care of themselves. I find my time cards very valuable in this respect and am able to get the exact cost in all branches of our work.

Supt. Woodland Cemetery.

Dayton, Ohio.

Combined Office, Residence and Waiting Room.

We are contemplating erecting an office, residence and general waiting room all in the one building. I would be pleased to receive suggestions as to the proper construction of this building. Do you know of any recent modern office buildings? If so, would you kindly inform me?—C. F., N. Y.

The consensus of opinion among cemetery men seems to be against the use of a combination building for office, residence and general waiting room. One prominent superintendent writes: "I do not approve of superintendent's residence in connection with office and waiting

rooms. I really cannot see any reason why they should be combined, and I think it an injustice to both the superintendent's family and the public. So my advice would be to keep the residence away from the office and the waiting room." One building of this kind that is comparatively modern is in Riverside Cemetery, Rochester, N. Y.; F. Sheard, superintendent. This is quite a modern building, and Mr. Sheard could undoubtedly give you the name of the architect or any further particulars regarding it that you may desire. M. L. Carr, architect, Indianapolis, Ind., designed quite a neat building of this kind for Forest Hills Cemetery, Shelbyville, Ind. The building is probably a smaller one than you would require, but if he looked the matter up any before making the drawings for this building it is possible that his suggestions would be of some assistance to you.

Tree Moving Machines.

Editor Asked and Answered Department: I am in the market for a tree-moving machine in small size, something that will move a tree 6 to 8 inches in diameter. If you know of any one who handles this machine, would be glad to

have his address. I would also like to have the address of some one who handles plans of landscape gardening.—J. B. M., La.

The only firm we know who sells tree-moving machines is Isaac Hicks & Son, Westbury, L. I., N. Y. They do extensive tree moving and have a number of machines for that work, and could doubtless furnish you with almost any size apparatus that you might want. In the January issue of PARK AND CEMETERY we published an article on moving trees in winter that might be of some interest to you, and perhaps of some assistance if you decided to construct an apparatus of your own or move your trees on stone trucks, as is sometimes done by tree movers up in this part of the country. Of course, they generally have a frozen ball of earth to handle up here, which you would not have, and this makes your proposition somewhat different from those we are accustomed to handle in this part of the country. Concerning plans for landscape gardening work, any of the landscape architects whose advertisements you see in PARK AND CEMETERY could furnish you with plans for any landscape improvements you might want to carry out.

OFFICIAL COMMUNICATIONS

JAMES B. SHEA, Boston, Mass., President



AND CONTRIBUTIONS

J. J. LEVISON, Brooklyn, N. Y., Sec.-Treas.

ASSOCIATION EMPLOYMENT BUREAU

A member who is superintendent of parks in a Metropolitan northern city wishes to change position on account of political interference with his work. Trained in horticulture, planning and development of parks; has done important work of park development, and is thoroughly familiar with park work of every character; can furnish highest references as to ability to take charge of large city park system. Address "Politics," care Secretary Levison.

The Massachusetts Agricultural College, Amherst, Mass., is now graduating a number of trained men competent to fill a wide range of positions in park, tree or landscape work, and would be glad to correspond with Park Commissioners or others who may have openings for such services. This college offers one of the most thorough and practical courses in agriculture, tree work and landscape gardening in the country. Its graduates have had a thorough training in landscape gardening and horticulture under Prof. F. A. Waugh, who undoubtedly is one of the best authorities of our day and it is safe

to assume that they have been well trained and properly fitted for any position in park work.

Annual Proceedings and Bulletin No. 10.

The Secretary's office has just issued Bulletin No. 10 on "Park Utilization," containing replies to a list of questions on

SPRAYING DEVELOPMENTS IN MASSACHUSETTS

Solid Stream versus Mist. A Brief Statement of the Writer's Experience and Observation During the Last Six Years.

By R. W. CURTIS,

Arnold Arboretum, Jamaica Plain, Mass.

(Concluded)

In regard to some specific directions for common park and orchard insects, I can set down my experience briefly as follows:

Gypsy Moth.—Use the best arsenate of lead obtainable at the rate of 8 lbs. to 100 gallons water, and spray early and thoroughly. If the work can not be done early the strength must be increased. As soon as the eggs are all laid, i. e., about the last of August, send a man over the whole place to creosote all egg masses up to twenty feet. This should be done before the leaves fall and obscure the base of the tree. The sooner it can be done the

utilizing the parks sent to members, and a very interesting brochure of 20 pages containing many useful suggestions and experiences on making the parks more useful, is the result.

The proceedings of the last annual meeting have also been published, and members who have not received copies of either of these publications may have them upon request to the Secretary.

less the danger from squirrels scratching and scattering the egg masses which come in their lines of travel up and down the trees. For every man on the place should know that the eggs will hatch just the same whether they remain undisturbed in the original egg mass or whether the egg mass is broken and the eggs scattered on the snow or ground about the tree. Later, in small places with only light infestations the trees may be climbed and the remaining egg masses creosoted. In this way the expense of spraying may often be avoided.

Brown Tail Moth.—Spray early as the leaves unfold with 8 lbs. arsenate to 100 gallons water. The best and cheapest method is to cut off the winter webs when the snow is on the ground and the man below can see them easily and pick them up. In low plantations badly infested by heavy flights of the moths in summer it is possible to control very cheaply by spraying the upper sides of the leaves on which the young larvae feed before forming the winter web.

Tussock Moth.—Spray early with 6 to 8 lbs. arsenate to 100 gallons water. Creosote the egg masses any time during the winter.

Elm Leaf Beetle.—Spray in summer 6 to 8 lbs. to 100 gallons, as soon as the eggs are laid on the under side of the leaves. This work must be thoroughly done and the spray made to adhere to the under side of the leaves. The larvae feed only on the under surface of the leaves. They are not hard to kill, but it is hard to get the poison to stick in the right place. In bad localities it may be necessary to spray also early in the spring, as soon as the leaves are full size, in order to kill the adult beetles which have hibernated during the winter and which feed a long time before laying eggs. The adult beetles eat holes in the leaves, and this spray may be applied to the outside of the tree on either the upper or lower surface of the leaves.

Codlin Moth.—Spray with arsenate, 6 lbs. to 100 gallons, just as the blossoms fall. This spray is timed to get the poison into the still open calyx. This is the point where the little worm eats into the young apple. A few days later the calyx cup closes and it will be practically useless to spray for codlin moth.

San Jose Scale.—Spray with any good dormant contact spray early, before the buds begin to swell. Lime sulphur is the cheapest commercial spray, but in our work at the Arboretum it is necessary to use soluble oil because the lime sulphur turns our painted labels black. It is possible to kill the young, newly hatched scales during the summer by weak contact sprays, such as soap solution. There are four or five broods during one season and usually there are too many other things to fight at this time, so that the most common practice is a strong dormant spray early in spring before the buds swell. Let me caution you to be careful of peaches and all members of the almond group when soluble oil is the spray. It is liable to injure.

Oyster Shell Scale and Scurphy Scale seem to be controlled somewhat by the same dormant spray used for San Jose scale, but the surest and most common method now is to spray with weak contact spray as soap solution, 1 lb. to 10 gallons water, just as the young are hatching in

the spring. The oyster shell passes the winter as a mass of white eggs under the old scale. The scurphy scale winters in the same way, but the eggs are red in color.

Aphis or Plant Lice.—This is a fruitful field for discussion. The last few seasons have been particularly troublesome for aphids. The standard remedy is weak soap solution, kerosene emulsion or some form of tobacco extract. To any of the above mixtures add a liberal amount of everlastingly-at-itness and Johnny-on-the-spotness. The green aphid is easier to kill than the black aphid. Some aphids pass the winter as black eggs exposed on the twigs and about the buds and sometimes around the base of the plant. Whenever the eggs are exposed soluble oil will shrivel them up, at the same dormant strength as for San Jose scale. As a general practice I would advise spraying thoroughly top and bottom with dormant contact spray any plants specially liable to attack from aphids. Such a spray has seemed to be helpful in the case of our climbing *lonicer*as as *L. dioica*, *L. Sullivantii*, *L. Heckrotti*, etc., which are always greatly troubled by aphids. The foliage of these plants is very tender and the structure of the unfolding bud is such that once the aphids get in the terminal bud they are so protected that it is next to impossible to rid the plant of them by means of sprays. Constant watchfulness is absolutely necessary.

Red Spider.—This has also been very bad for the last few seasons. They are easily reached and a weak soap solution is the best remedy.

Lace Bugs or Turgitids.—These are sometimes very troublesome on *kalmia* and *rhododendron*, but are very easy to kill if you are only careful to hit them. They are always on the lower surface of the leaves, and so a bent-arm nozzle must be used. On large plantations or in commercial operations it will pay to use a soft naphtha soap soluble in cold water. The usual strength is one pint to eight gallons water.

Elm Bark Beetle.—There are two insects which are very serious pests in this part of the country, but neither of which can be reached by any known method of spray. These insects are the elm bark beetle and the leopard moth. They are both boring insects. In the case of the elm bark beetle prevention is worth a pound of cure. The beetles always attack weak or dying trees or places on healthy limbs which have been injured or checked in some way. The only recommendation is co-operation with your neighbors and a continuous policy of careful pruning and watchful practice to keep the trees in good, vigorous condition. All dying trees should be cut out and burned during the winter. They will be full of the beetle and if allowed to remain will only spread the trouble more.

The Leopard Moth is a very serious borer also, but there is at least one stage when we can fight it to advantage. The young larvae always bore first in the young twigs of the season. When the twig wilts the larvae leaves it for older and larger wood and will continue such borings for two or even three seasons. The way to get it is with the pole shears before the borer leaves the young, wilting twig. Since the eggs are laid intermittently from the last of May until the first of September, the only sure remedy is a careful patrol the last of June, the last of July, the last of August and the last of September. Older larvae may be discovered in their burrows and sometimes may be dug out with a wire or cut out with the knife, or, lastly, fumigated with carbon bisulphide. There are no other known remedies.

I must not close this discussion without mentioning one more problem which is still unsolved. This is the control of the sawfly leaf miner on *crataegus*. In appearance and habit this miner is very closely allied to the sawfly leaf miner, so destructive to the foliage of Scotch elm and European alder. They are very abundant on *crataegus* in the Arboretum and through the Boston parks.

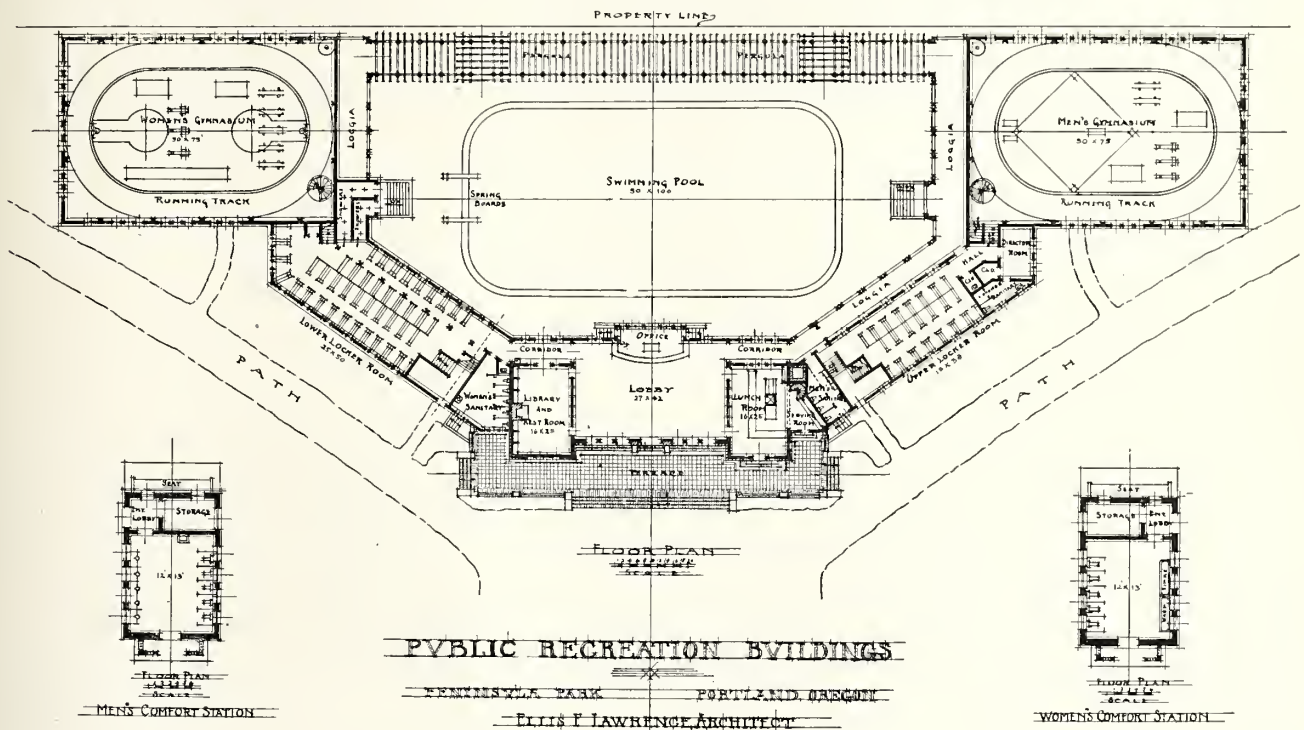
The larvae pass all but about six weeks of the year in the ground just below the sod. Early in May they pupate and emerge as winged sawflies. The eggs are laid on the under side of the leaf and the young larvae immediately enter the leaf and feed between the upper and lower epidermis until the last of June. Herrick, of Cornell, has controlled the miners in Scotch elm by "Black Leaf 40," 1 to 800 parts water, and I have duplicated his experiments perfectly. Chapman, of Boston, has had similar success on elm with "Nico-fume" at the same strength—1 to 800. But on *crataegus* the epidermis of the leaf is so heavily cutinized that even eight times this strength will not enter and kill the miner. It will injure the leaf without affecting the miners at all. I have also tried kerosene emulsion, 1 to 10, and also soap solution and nicofume in several strengths, but to date nothing has offered any practical solution of the difficulty. My only hope lies in a report of one isolated case where trees badly troubled one year were sprayed with arsenate of lead early, and again later when the leaves were fully expanded. They were practically free of the miner that year. This experience suggests Slingerland's discovery regarding the codlin moth, which made spraying into the calyx cup as the blossoms fall the standard remedy for this orchard pest. I shall follow up this suggestion the coming season and it may be that this simple arsenate spray applied to the under side of the leaves before the eggs are laid will prove to be the cure for leaf miner on *crataegus*.

COMMUNITY GROUP OF RECREATION BUILDINGS

One of the most interesting and convenient groupings of service and recreation buildings that has much of suggestion in it is the group in Peninsula Park, Portland, Ore., the plan of which is illustrated here.

Forming the corners of a general triangular plan are three buildings, men's and women's gymnasiums, and a general service building, embracing library, lunch room and offices. Connecting the general building with the gymnasiums and forming two sides of the triangle are the locker rooms, showers and toilets. Forming the rear or long side of the triangle is a pergola, connecting the two gymnasium buildings. In the center, and enclosed on all sides by these structures, is a swimming pool 50x100 feet. The arrangement seems to be an excellent one for the convenience of the administration and in service to the patrons.

The swimming pool was completed last year and contracts have been let for the completion of the other buildings in this community group. Peninsula Park includes seventeen acres, and improvement work has been proceeding rapidly in it. The completion of the grading in the garden was executed in the spring by filling the southeast quarter with top soil to a depth of two feet; fourteen thousand roses were planted in the garden; the foundations for two brick steps



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were constructed and those of two others of greater elaboration are in process of construction; tile of the walk drain system has been put in place. Concrete walks have been laid throughout the park north of the garden and a concrete wading pool and concrete walls of the sand court built. Ornamental concrete light standards have been erected and finished grading done in the boys' and girls' play areas.

TREATMENT OF SPRING PLANTED NURSERY STOCK

By E. M. Swiggett, Superintendent of Parks, Utica, N. Y.

In a previous article I took up the importance of doing municipal planting in the fall, but owing to many things, notably Arbor Day, necessity for securing quick results, etc., there will always be a minimum amount of planting, at least, done in the spring. Since this is the case, and, equally, since facilities for watering newly planted stock are often inadequate, results obtained here may be of value to other park superintendents, public officials and owners of suburban estates.

The spring of 1911 in Utica began about April 15th, and from that date to May 30th climatic conditions were bad for planting. There was scarcely any rain to amount to anything and the mercury showed 100 degrees in the shade about

May 28, 1911. The next spring, 1912, there was one bright, warm week in which to plant, then followed rain, rain, rain, and all the time it was intensely cold. The rain was followed by an eight-weeks' drought. The newly planted stock in 1912 made no headway on account of the cold, even with plenty of rain, and, of course, after the cold the blasting heat, dryness and almost continual high, west winds prevented growth.

This year again spring began about April 15th and for four weeks it was, at times, very hot; at times it has been so cold water froze, and until now it has been very dry throughout the planting season.

In all three seasons the nursery stock has had to be planted in the spring on

high, exposed knolls where a water system had not yet been installed.

The treatment:

The nursery stock was all clipped back heavily, much further than stock planted in the fall, but, even at that, we lost some stock, and in every case it was the plants which had been clipped the least which succumbed soonest. The moral is, clip back as heavily in the spring as all plantmen clip when planting anything and then clip off six to eight inches more, in proportion to the kind and height of the stock. Clip off at least two feet from the longest branches of fourteen-foot stock, one foot off for twelve-foot stock, ten inches for ten-foot, and so on.

We found out the first year of the

planting, 1911, the importance of dry farming methods on shrubbery plantations.

At first it almost seemed sheer folly to spade and cultivate shrubbery beds each week whether there had been showers or not, but a careful examination of plants in cultivated and uncultivated beds showed a very great difference. The plants in the continuously cultivated beds began to show a marked improvement, even in the drought, while those in uncultivated beds not only did not move, but kept going down, down, down.

Last year, 1912, the drought came in June and July and the hot, dry winds literally burned the new grass black-brown like charcoal on the slopes where the shrubbery was planted with no trees to shade it, but the shrubs were kept cultivated, and practically all of them pulled through, even in places where many had said they could never live even had there been no drought.

Another thing which helped us was that, in 1912, after our experience of 1911, we took the precaution to double the quantity

of old manure at the bottom of the holes for shrubs to be planted on the worst slopes. Some shrubs did not leaf out until nearly August, but their limbs retained their life and leaved at last.

Some of the treatment described here is necessary when planting nursery stock at any time, but this article is inspired by the fact that there have been three consecutive spring planting seasons in Utica in which it has been most difficult to keep nursery stock alive after planting and have it do even indifferently well.

AN AUTOMATIC LAWN SPRINKLER SYSTEM

Improvements in Balboa Park, San Diego, Cal., are rapidly progressing preparatory to the Panama-California Exposition, to be held there throughout the year

Spanish colonial architecture in a setting of tropical and semi-tropical verdure will give a charm to the landscape unusual at large expositions. The charac-

teristic of the system is that the water is supplied from the city mains, but an independent pumping plant is being seriously considered. Ten thousand six hundred and twelve trees and 5,868 shrubs were planted during 1912. The former were principally acacia, eucalyptus, cypress and pines, in variety.



AUTOMATIC LAWN SPRINKLER SYSTEM AT WORK IN BALBOA PARK, SAN DIEGO, CAL.

1915. More than one-third of the 1,400 acres that comprise the park has been set apart for exposition purposes and are being developed under the direction of Director of Works Frank P. Allen, Jr. The city has issued a million dollars worth of bonds, the greater part of which will be expended within the exposition grounds. Bridges, lagoons, roads, several buildings and a great deal of the planting and other construction work now in progress will be of a permanent nature.

ter of the soil differs very materially from that commonly found. Owing to the underlying hardpan, drilling and blasting, followed by deep plowing and cultivating is frequently necessary before tree or shrubbery planting can be done with any assurance of success. Among the permanent improvements made during the past year was the installation of the Hadden automatic sprinkler system for watering the lawns. Twelve thousand one hundred and

be judged from the illustration. Superintendent J. G. Morley says the system is proving very satisfactory. The subject of irrigation is an important one. At present water is supplied from the city mains, but an independent pumping plant is being seriously considered. Ten thousand six hundred and twelve trees and 5,868 shrubs were planted during 1912. The former were principally acacia, eucalyptus, cypress and pines, in variety.

A WELL PLANNED CEMETERY ENTRANCE

The Forbes street entrance to Homewood Cemetery, Pittsburgh, Pa., is exceedingly well situated, both as to convenience and easy access, not only to the numerous sections of the cemetery, but in that it is located at a point where the electric car service connecting with all parts of the city and suburbs may be had readily.

The approach to the entrance, which is a Virginia granite structure, and semi-circular in design, as shown in the cut, is by way of Forbes street, which runs along

one side of the cemetery, and the Wm. Pitt boulevard, which becomes tangent to Forbes street for about 200 feet at the entrance, thus affording a broad expanse of open driveway to patrons entering and leaving the cemetery.

The superintendent's house, which lies about 100 feet back from the Forbes street entrance, faces to the east, while the entrance is to the south. The house is of English design, the first-floor plan consisting of kitchen, dining room, living room and sitting room, conveniently arranged,

while on the second floor are five bedrooms and two bathrooms. The exterior of the first floor is of Indiana limestone, while the sides above the first floor are of cement paneling. The cost of this building was about \$20,000.

The composition of the entrance and house, with its surrounding flower and shrub beds, its trees, lawns and wide avenues of approach, its undulating background, shows a freedom and common-sense endeavor to reap all that is most beautiful in nature.



FORBES STREET ENTRANCE AND SUPERINTENDENT'S RESIDENCE, HOMewood CEMETERY, PITTSBURG, PA.

WORK OF NEW YORK FOREST RANGER SCHOOL

The students of the State Ranger School of the New York State College of Forestry at Syracuse University, which is held on the College Forest of 1,800 acres on Cranberry Lake, have been estimating the

first Ranger School to be organized in the East has an important part to play in the development of forestry in this country. The school plans to give an unusually thorough and practical training of

ranger, guard or an expert in tree planting and forest nursery practice, but not a professional forester. These courses are not recommended for persons in poor health or for those who have little inclination for the rough life of the woods.

Practical field work in silviculture, forest surveying, estimating and mapping, forest protection, methods of lumbering, etc., will take precedence over classroom work in the courses, but theoretical and practical instruction will go hand in hand.

Upon completion of the one or two-year courses a certificate will be given by the New York State College of Forestry. After two years of satisfactory practice, following completion of either of the courses, an honorary diploma will be granted.

The village of Wanakena is well located along the west inlet flow of Cranberry Lake and on the Ontario division of the New York Central Railroad, 140 miles north of Syracuse. Cranberry Lake is the largest of the many beautiful Adirondack lakes. The College Forest covers a belt of rolling country over three miles long, lying about one-half mile north of Wanakena and having an average elevation of 1,500 feet.

Before the opening of the school in September two rough but permanent buildings will be completed which will accommodate very comfortably from thirty to forty men. The main building will have a large assembly room, with fireplaces on the first floor, as well as two small laboratories and an office. The second floor will be a dormitory for the students of the school. The buildings will be heated with steam and lighted with electricity. The second building will contain dining-room, kitchen, storerooms and dormitory for help. Plans are already under way for further buildings.

There will be a very thorough equipment of forest instruments such as transits, compasses, chains and tapes, calipers and other instruments necessary for forest work. Further details about the arrangements for this course in practical forestry may be had from Dean Hugh P. Baker, of the State College of Forestry, Syracuse, N. Y.



BEAN POND ON NEW YORK STATE COLLEGE FOREST AT WANAKENA.
A small pond of spring water surrounded by Black Spruce and Balsam Fir.

timber on the College Forest. The Ranger School had its regular opening during the first week in February of this year and there were fourteen boys there from different parts of the state. The men began by working on snow shoes, crossing the tract every quarter of a mile, gridiron like, to determine by accurate measurement just how many board feet there are to the acre. The work is divided between compass-man, caliper-man, who measures the diameter of the tree and estimates the merchantable length, and a tally-man. On a strip sixty-six feet wide, the length of the ordinary surveyor's chain, every tree above four inches is measured with a caliper. The compass-man and the tally-man use the chain and determine the length of the strip and record each tree as its diameter is called out by the caliper-man. It has been found that this is the best time of the year for estimating timber, as the snow has a smooth crust, which makes easy traveling over logs and brush. By estimating the timber in these strips and using calipers a very good average of the stand per acre and the stand according to the different types of forest is secured. The students of the school are not only taking part in every operation, but are making careful reports and getting the experience that will help them to become efficient guards, rangers, forest estate managers and tree-planting experts.

There is a very prevalent feeling among both timber owners and foresters that this

one and two years, fitting men for such positions as rangers, guards, tree-planting experts, nursery foremen and managers of forest estates. Young men who have already had some experience in lumbering operations or who are well trained in woodcraft will find this course a material help to them in preparation for the more expert quality of service which is demanded by modern methods of handling timber holdings. Men who have not been able to prepare themselves for college or who prepared themselves earlier and then did not enter college, will find the two-year course a very satisfactory one. It will not only prepare them for practical woods work, but by receiving more theoretical instruction they will be able to continue reading and investigational work more effectively. Neither the one nor the two-year course is offered as an education in forestry. The man who completes the courses satisfactorily will be a trained



Three Rivers, Mich., is considering a plan for a systematic development of the city parks.

A continuing appropriation of \$600,000 for improving Crater Lake National Park, by building roads, boulevards, etc., has been

asked for by the Klamath, Ore., Chamber of Commerce.

The New York Supreme Court has confirmed the award of \$1,250,000 made to the Neponsit Company for the land taken by the city at the westerly end of the

Rockaway peninsula for a public park. The total sum to be paid to the company is \$1,316,458.33.

Pontiac, Mich., is considering the development of a park system.

The Iowa legislature is favorably considering a measure providing for the levy of a half-mill tax for the purpose of improving the capitol grounds.

Tucson, Ariz., will have a park commission, and a fund will be provided for taking care of its parks.

A bill has been passed by the Ohio legislature by which all parks owned or hereafter obtained by cities will be under the control of the park board. It was framed to overcome the necessity of having city parks controlled by more than one body.

Detroit, Mich., is seriously considering a more comprehensive plan for laying out and developing a large park system. The Park Board is looking to the construction of a large outward boulevard, which will include a great portion of the city. To this end a number of parcels of land has been secured. Detroit's park system was begun in 1854.

The Park and Cemetery Commissioners of Grand Rapids, Mich., have asked the council for practically \$101,000 for work to be done the coming year. The receipts for the park funds for the year were \$81,888, and the disbursements were \$80,434.77. Maintenance and improvements cost \$102,342.44. Labor items figure largely in the report. With a trifle over \$102,000 expended last year, the board now asks for nearly that sum for the coming year.

Thirteen years before Chicago was even surveyed and platted and only five years after the Fort Dearborn massacre, the then thriving town of Cincinnati, O., received its first public gift of land for park purposes. In April, 1817, an acre of land was donated to their fellow townsmen by John H. and Benjamin Platt, to be used as a market space. The total acreage of all park property in Cincinnati now amounts to nearly thirteen hundred acres, which, apart from the value of many other generous donations, has cost the city nearly four and one-half millions of dollars. The tract of one acre given the city by the Brothers Platt was protected by an ordinance passed by the council, and was used as a park as early as 1843. A quarter of a century later, in 1868, it was formally dedicated to park use and is now known as Garfield Park.

An initiatory petition, constituting the first application in Little Rock, Ark., of a law passed by the last legislature, giving a majority of the property holders of any district the power to form an improvement district and condemn any property in the district for the purposes of establishing a public park, has been filed with the City Council.

Snyder Park, the pride of Springfield,

O., was at one time during the recent flood disaster almost a complete waste of water and drift. Great damage was done. Bechtle bridge, a \$12,000 concrete structure, was torn completely in two.

The South Park Board of Chicago has approved the preliminary steps toward the fulfillment of the new system of parkway on the lake front, extending from Grant Park to Jackson Park. The work of filling in the lake front will be pushed.

A society was recently organized in Chicago for the preservation and protection of native landscape in Illinois and neighboring states. The club is to be incorporated under the title "Friends of Our Native Landscape."

The City Council of Providence, R. I., at a special session, recently held, passed a resolution directing the city solicitor to apply for legislation authorizing the city of Providence to hire \$250,000 for extensions to the playground and park system of the city.

Improvements and Additions.

The United States Department of Agriculture will aid in the beautification of the levee park, Muscatine, Ia. The plan of beautification will be worked out during the early spring. Seats and benches will also be placed on the little filled-in strip and the river site parking will undoubtedly be popular.

The Connecticut Fair Association, Hartford, Conn., has announced plans for the development of the Connecticut fair grounds at historic Charter Oak Park. The plans, which have been considered by the directors and officers of the fair association are of more than local interest, as the fair has already established a hold upon state pride by the manner in which it does things.

Funds are being raised by the Board of Trade of Stratford, Conn., for the purpose of beautifying Academy Hill, Paradise Green and other smaller places around town that can be made into handsome little parks.

Work of developing and planting Taylor Park, Freeport, Ill., is advancing rapidly. The lakes will be completed this summer.

The Park Commission of Spokane, Wash., through its president, A. L. White, has prepared extensive plans for improving the river east of Mission avenue and west of Monroe street.

The work of beautifying the grounds about the new postoffice building at Rock Island, Ill., is well under way, and it will serve as an incentive to much needed improvement in the neighborhood.

Bonds to the amount of \$25,000 have been issued by the Board of Park Commissioners of Bloomington, Ill., for the new animal house to be erected at Miller Park.

A bond issue of \$5,000,000 for the purchase of new parks and playgrounds and the construction of additional municipal swimming pools and bath houses has been asked by Park Commissioner Dwight F. Davis in his annual report to the Board of Public Improvements of St. Louis, Mo.

One hundred thousand dollars, exclusive of the cost for realty, is the appropriation made by the Rock Island railroad to provide Moline, Ill., with a new passenger station and to park the ground that will surround the new structure.

Choice of a location for the proposed amphitheater to be erected in Garfield Park, Chicago, has been made by the West Park Board.

The Dusseldorf fountain is about to be taken from the Denver, Colo., Custom House, and will be erected in Washington Park, South Denver. This park is essentially a children's park and the fountain should make an appropriate improvement.

The Woman's Club of Waverly, Ia., has asked to be allowed to equip with amusement paraphernalia the three school grounds.

The most extensive improvement contemplated in the Rockford, Ill., park district is the installation of a lagoon and swimming pool at Sinnissippi Park, the money already having been appropriated. The commissioners, however, have not come to an agreement with officials of the Chicago & Northwestern Railroad for permission to cut an intake from the river to extend under the company's tracks to the lagoon and pool.

New Parks.

Plans for a new city park on the north beach, between E and H streets and Thirtieth and Seventeenth avenues, Salt Lake City, Utah, are being prepared in the engineer's office.

Plans have been prepared by Mr. O. D. Arp, superintendent of parks, Sioux City, Iowa, and have been approved, for the preliminary landscape work in connection with the development of Stone Park. It is a beautiful property, lending itself to picturesque improvement.

Niblack Terrace, a nine and a half acre tract of land, situated adjacent to the U. C. T. home, in Monticello, Muskogee, Okla., was purchased by the city commissioners for \$9,650, to be used for a city park.

Paul Revere Park, supposed to be the smallest park in the United States, and located at the top of Winter Hill, Somerville, Mass., is to have its area increased from 1,000 to 2,000 feet. Mayor Burns, it is understood, will recommend in his funded debt a sum sufficient to purchase the additional number of feet.

Mr. Albert Lee France today tendered to the City of St. Joseph, Mo., the square block of ground bounded by Twenty-sixth,

Twenty-seventh, Clay and Regent streets, for a public park, and the park board, at a special meeting, promptly adopted a resolution recommending to the city council that the plot be accepted. A resolution of thanks to Mr. France also was adopted.

Plans for the establishment of a state park along the banks of the Patapsco river in the neighborhood of Ellicott City, Ilchester and other towns in Maryland, are being rapidly matured, the proposal of

John M. Glenn to give nearly 100 acres of land for the purpose and of Robert Norris and Rollin Norris to give an additional 60 acres, having done much, it is said, to encourage the project.

The old cemetery grounds of Ludlow, Mass., are being graded and will be turned into a children's playground by the town.

Mr. Frederick Law Olmsted has recently been in Denver, Colo., conferring on the civic center plans and the mountain park system.

Among a number of community mausoleums now under construction in various parts of the country are structures at Waterloo, Ia.; Cedar Falls, Ia.; Lisbon, O., and Paducah, Ky. Incorporations: The Greensburg Mausoleum Co., Pittsburgh, Pa.; the Hillsboro Mausoleum Co., Hillsboro, Ill.; the Elgin (Ill.) Mausoleum Association. Projected mausoleums: Paducah, Ky.; York, Pa.; Atlanta, Ga.; West Lawn Cemetery, Omaha, Neb. Governor Sulzer criticised the mausoleum advocates of a structure in North Hempstead, L. I., and vetoed the bill passed by the New York legislature, and a decree enjoining the International Mausoleum Co., of Chicago, from erecting a mausoleum in Oakland Cemetery, Princeton, Ill., was granted by Judge Joe A. Davis in the Circuit Court.

A fifteen-acre plot purchased nine years ago by the Sheerith Israel Cemetery Association, St. Louis, Mo., has by a court decree been exempted from general taxes. Taxes for nine years had accumulated and suit was instituted to force collection. Owners of the cemetery, believing the property to be on the exemption list, had paid no attention to the assessments.

At a recent meeting of the trustees of the Pine Hill Cemetery, Dover, N. H., the amounts required to be placed in trust for the perpetual care of lots was raised. Where hitherto \$50 has been the sum accepted for permanent care of a quarter lot, a deposit of \$100 will be required, \$200 for permanent care of a half lot, and \$300 or more for permanent care of a full lot or square. The latter is the minimum charge. What may be paid in excess of that sum being optional and at the discretion of the other party to be devoted to the care of tombstones and monuments.

Plans are being made by the City Council of Des Moines, Ia., to provide a sinking fund by setting aside a percentage of the revenue derived from the sale of lots, the income from which is to be applied to the future care of Laurel Hill and Glendale cemeteries.

While, technically speaking, the body of J. Pierpont Morgan lies in the town of Wethersfield, to all intents and purposes it is in the town of Hartford, Conn., as special acts of the legislature incorporating Cedar Hill Cemetery provide for the registering of all deeds of transfers of lots in the land records of Hartford. The Hartford police and police court also have jurisdiction over that part of the cemetery lying in Wethersfield.

Improvements and Additions.

There is a concerted movement among the fraternal orders at Deming, N. M., to beautify the cemetery. Among the anticipated improvements is the installation of a well and pump for water supply, and the

CEMETERY NOTES

REACTIONARY CEMETERY LEGISLATION FAILS.

None of the bills to tax unoccupied portions of cemeteries that were before the New York Legislature, as noted in our last issue, were passed at the last session of the Legislature. That body having now adjourned, the subject cannot be revived until next January. Meanwhile the Allied Cemeteries Committee will doubtless get together and devise ways and means for resisting such legislation, should it be reintroduced. Richard T. Greene, attorney, 43 Exchange Place, New York City, is chairman of the Cemeteries Committee.

It is also gratifying to note that the bill before the Pennsylvania Legislature to forbid cemeteries from preventing outside gardeners from working on lots has been defeated.

NEW ENGLAND CEMETERY ASSOCIATION.

The next meeting of the New England Cemetery Association will be held at Mt. Auburn Cemetery, Cambridge, Mass., June 19. The committee has decided to make a trip to Concord and Lexington in the afternoon, and a very interesting meeting is in prospect. Horace A. Derry, Glenwood Cemetery, Everett, Mass., is secretary.

Coroner James C. Davis, Leavenworth, Kas., the father of the movement to establish a cemetery in which unfortunate people who die friendless, or whose relatives are destitute, can be buried for the cost of digging and preparing the grave, instead of in a pauper's field, says it only remains for the trustees of Mt. Muncie Cemetery to agree upon a price to be charged for digging graves, before the much-talked-of poor man's cemetery becomes a reality. He has been pledged support for his very worthy effort.

Litigation between Mrs. Nicoll Ludlow, wife of Rear Admiral Ludlow, and the vestry of St. John's Church, Oakdale, L. I., over the church's right to the graveyard

on the old Ludlow estate at Oakdale, now owned by F. G. Bourne, has been decided in favor of the vestry by the Court of Appeals. Suit was begun some four years ago by Mrs. Ludlow to prove ownership, which resulted in the first trial in her favor.

From Waterloo, Ia., the news comes that the Standard Company, of Cleveland, O., has filed a petition in the District Court asking damages from the Iowa Mausoleum Company to the amount of \$4,520 for balances due for bronze and other fittings for the Glendale mausoleum, Des Moines, on a contract dated March 12, 1912.

The trustees of McAfee Cemetery, Pridgeburg, Ont., the oldest cemetery in that section, are taking steps to preserve what is really a historic burying ground.

A petition for a writ of injunction against the West Side city authorities of Texarkana, Tex., has been filed with the District Court of Bowie County, asking the court to restrain and enjoin the city from proceeding with its plans to establish an extension of the Rose Hill Cemetery, in the five acres of land recently purchased by the city. The plaintiffs claim that the topography of the plat will lead all its drainage water through their territory.

A cemetery association has been recently organized at Findley, Ill., to secure a site and maintain a cemetery close to the city limits.

Reorganization of the Greenwood Cemetery Company, Knoxville, Tenn., has been perfected. The capital stock has been increased from \$50,000 to \$100,000, a new board of directors and new officers have been chosen and plans inaugurated for extensive improvements in the beautiful burial park north of the city, near Smithwood, Beverly and Fountain City. The newly elected officers are: President and treasurer, Dr. R. N. Kesterson; vice-president, J. W. Hope; secretary, Thomas Kesterson; executive committee, H. W. Curtis, C. L. Baum, J. W. Hope, Dr. R. N. Kesterson and Thomas Kesterson.

improvement of the lots and the planting of trees and shrubs. While it is not the intention to take care of other than the fraternal societies' burial plots, work on other lots and graves will be done at cost for those desiring to join the movement.

The Plainville Cemetery Association, Plainville, Conn., is planning to make extensive repairs at the local cemetery this year. Last year a new fence was constructed and crushed stone was rolled down into the roadways.

St. Joseph's Cemetery, at Whittenton, Mass., is to be considerably improved this season. Rev. Fr. Flanagan now has charge of the grounds and a new schedule of rates will go into effect at once. Under the old system the income was barely sufficient to meet running expenses; hereafter a certain proportion will be set aside for improving and beautifying the cemetery.

With the purchase of the Stone tract adjoining Evergreen Cemetery, Vinton, Ia., the trustees intend to make extensive improvements on the present grounds, as well as to plant and improve the new tract. To this end Mr. Arthur W. Hobert, of Minneapolis, Minn., has been engaged to plat and landscape the Stone property. This will be made to lap on the present cemetery, to make a harmonious whole.

Considerable improvement has been carried out at Walnut Hill Cemetery, Council Bluffs, Ia., the past year. A new stone and iron entrance, opening into a beautiful drive, has been constructed, and not far from the gate is an artistic fountain, which adds to the charm of the surroundings. The drives throughout the grounds have been improved and graded up, and they will be oiled during the summer. Two new additions to the cemetery have been opened up, and practically all the cemetery is now under perpetual care.

Oak Lawn Cemetery, Baltimore, Md., is making every effort to keep abreast with the times. A new section, costing \$6,000, has recently been opened and 700 lots have been platted. Oak Lawn, in making sales of lots, includes the corner posts, which helps to give symmetry and uniformity in its landscape effects. Oak Lawn is beautifully located, overlooking the Patapsco River and Chesapeake Bay, and is one of the most picturesque spots in Maryland.

The Forest Cemetery Improvement Association, Gadsden, Ala., is spending some \$2,000 in the immediate betterment of the cemetery. Among the costly items will be an expenditure of \$1,000, or thereabouts, for main entrance gates. It is probable that all future lots will be sold under a provision to keep them in an attractive condition.

Granite gate posts are to be placed at the North Maple street and Oak street entrances of Spring Grove Cemetery, Florence, Mass., as a gift from Luther Martin, of Florence. The work will be done by

the Hampshire Marble Company, and the cost will be about \$1,700. The posts will be of Barre granite, 10 feet high by 3 feet square.

The work of preparing for summer in Riverside Cemetery, Three Rivers, Mich., was begun about a week earlier this year than last.

The women of Rensselaer, N. Y., who have charge of the improvements at Beverwyck Cemetery, will build a concrete wall on the Washington avenue side of the grounds when the permanent grade of the avenue is established. The work will cost about \$800.

After the problem of where Muskegon, Mich., could find more cemetery lots has perplexed four or five successive city administrations, it has been put to rest for a time by the platting of about 300 additional lots in Oakwood Cemetery. The bulk of the new lots are laid out in the wide border between the outer fences in Oakwood cemeteries, and the present outer rim of lots. This seems like begging the question and is short-sighted policy.

The seventh annual Flower Day of Greenwood Cemetery, Knoxville, Tenn., was held on May 22, the exercises being conducted in the temporary chapel. This is made an interesting annual event in Greenwood Cemetery and the officials spare no pains to make the program interesting and call out a good attendance.

Mr. Sid J. Hare, of Hare & Hare, Kansas City, Mo., is preparing plans for the laying out of an addition to Oakwood Cemetery, Geneseo, Ill., of which Mr. R. D. Boice, a venerable member of the Association of American Superintendents, is secretary and treasurer. The addition comprises twenty-six acres and Mr. Hare will make a plat of the old cemetery and connect it with the new sections.

New Cemeteries.

A tract of four acres, known as the Polish Cemetery, east of Brookside Cemetery, South Deerfield, Mass., and which was a gift of Joseph Secoski, was dedicated last month.

There being practically no more desirable lots in the present cemetery at Rocky Ford, Colo., the city authorities are facing the necessity of providing more land. There is a promising tract adjoining on the south, but prohibitory prices are an obstacle to its immediate acquisition.

A new burial ground is to be opened six miles east of Muncie, Ind., by the Hawk Cemetery Association.

An association has been organized in Bristol, Tenn., to establish a new cemetery on the Weaver pike, near the city limits. A new cemetery is needed, as East Hill Cemetery, which has been used for years, is rapidly filling. The health committee of Bristol is making an investigation to determine whether a cemetery in the location selected would effect King spring, the for-

mer source of the city's water supply. No water is being used from this source, it being held in reserve in case of emergency.

From Annual Reports.

The annual report of the trustees of Woodlawn Cemetery, Boston, Mass., shows net receipts for the year 1912 to have been \$70,895.64. This includes: Sales of lots, \$18,893.40; graves, \$6,380; care of lots, foundations and interments, \$28,564.32. The disbursements, including labor, supplies, fence, office requirements, etc., amount to \$43,679.85. The repair fund is now \$287,357, and the maintenance fund is \$20,800. The net income from the receipts of the chapel is now set aside to establish an assurance fund for this building. The superintendent's report gives the number of interments for the year as 1,025, making the total in the cemetery to December 31, 1912, 40,145. There were 74 lots sold and 19 old lots placed under perpetual care. Work on exterminating and spraying canker worms, gypsy moths and elm beetles consumed 26 days' time.

Some interesting figures are given in the eighty-fifth annual report of Mount Auburn Cemetery, Boston, Mass., for 1912. Continued prosperity is noted. The sale of lots amounted to \$16,372; crypts for cremated ashes, \$436, and \$210 additional was received for the perpetual care of crypts. The perpetual care fund reached a total of \$1,818,987.24; permanent fund, \$589,723.27; general fund, \$193,510.58. By purchase and acquirement twenty acres was added to the cemetery, making over thirty acres unsold. The number of interments for the year were 420, making a total in the cemetery of 38,905. During the year 1912 there were 269 incinerations, giving a total of 2,493 for Mt. Auburn.

The annual report of the Marion Cemetery Association, Marion, O., showed total receipts for the year of \$12,794.38 and expenditures of \$9,514.27. The endowment fund now amounts to \$45,858.25, the general fund to \$23,780.25, and receipts for endowment of entire grounds, \$17,244.87, giving a total of cash of \$86,883.37. It is proposed to grade and plat three acres of ground this year, and the main driveway is to be sprinkled with calcium chloride and No. 4 standard road oil to keep dust and weeds down. Mr. E. A. Sloan, superintendent, sends us a copy of the automobile license ticket which has been adopted by the directors to control automobiles in the cemetery, which are now allowed under very drastic rules and regulations and which are printed on the back of the ticket. A number of new rules were adopted, it being the view of these officials to maintain the cemetery on up-to-date lines.

The receipts for the year of the Ottumwa Cemetery Association, Ottumwa,

(Continued on page X)

TOPICAL INDEX to OUTDOOR LITERATURE

An Index to articles on Gardening, Forestry, Park, Cemetery and Civic Improvement and kindred subjects in leading general and special magazines

Subscriptions will be received for any magazine or periodical at club rates with Park and Cemetery. Publications in which articles appear are listed below, and referred to by abbreviations, thus S. L. 8:67-8, Feb. 09, means: Suburban Life, vol. 8, pages 67-8, February, 1909.

Single copies should be ordered direct from the publications at addresses given below

PUBLICATIONS INDEXED AND ABBREVIATIONS USED

American Botanist, Joliet, Ill. (A. B.), 75c year; 20c copy.

American City, The, (Am. C.), New York, \$2.00 year; 25c copy; back numbers, 25c.

American Florist, Chicago (A. F.), \$1.00 year; 5c copy.

American Homes and Gardens, New York (A. H. G.), \$3.00 year; 25c copy.

Architectural Record, New York (Arch. Rec.), \$3.00 year; 25c copy.

Art and Progress (A. & P.), Washington, D. C.; \$1.50 year; single copy 15c.

Canadian Florist, The, Peterboro, Ont., Can. (C. F.), \$1.00 year; 10c copy.

Country Life in America, New York City (C. L. A.), \$4.00 year; single copy, 35c.

Country Gentleman, Philadelphia, (C. G.), \$1.50 year; 20c copy.

Century Magazine, New York City (Cent.), \$4.00 year; 35c year.

Chautauquan, The, Chautauqua, N. Y. (Chaut.), \$2.00 year; 25c copy.

Craftsman, The, New York City (Cr.), \$3.00 year; 25c copy.

Embalmer's Monthly, Chicago (E. M.), \$1.00 year; 10c copy.

Fern Bulletin, Joliet, Ill. (F. B.), 75c year; 20c copy.

Florists' Exchange, New York City (F. E.), \$1.00; single copy, 5c.

Florists' Review, Chicago (F. R.), \$1.00 year; 5c copy.

Fruit Grower (F. G.), St. Joseph, Mo., \$1.00 a year; 10c copy.

Gardener's Chronicle of America, Jersey City, N. J. (G. C. A.), \$1.00 year; single copy, 10c.

Garden Magazine, Garden City, N. Y. (G. M.), \$1.50 year; single copy, 15c.

Gartenkunst, die, Frankfurt, Germany (German), G. K., \$4.00 year; 50c copy.

Good Roads, New York (G. R.), \$1.00 year; single copy, 10c.

Horticulture, Boston (Hort.), \$1.00 year; single copy 5c.

House Beautiful (H. B.), Chicago; \$3.00 year; 25c copy.

House and Garden, Philadelphia (H. G.), \$5.00 year; 50c copy.

Independent, The, New York (Ind.), \$3.00 year; 25c copy.

Landscape Architecture (L. A.), Harrisburg, Pa.; \$2.00 year; 50c copy.

Minnesota Horticulturist, Minneapolis (M. H.), \$1.00 year; single copy, 10c.

Moeller's Deutsche Gaertner-Zeitung, Erfurt, Germany, (German), M. D. G., \$3.00 year; 10c copy.

Monumental News, Chicago (M. N.), \$1.00 year; single copy, 10c.

National Nurseryman, Rochester, N. Y. (N. N.), \$1.00 year; single copy, 10c.

Revue Horticole, Paris (Rev. Hort.), French, \$4.50 year; 50c copy.

Scientific American, New York (Sci. Am.), \$3.00 year; 10c copy.

Suburban Life, New York (S. L.), \$3.00 year; 25c copy.

Civic Improvement, Home Grounds.

Building the Bunker Hill Monument. Illust. M. N. 25:350-52. May, 1913.

Bitter's Masterly Carl Schurz Memorial. Illust. M. N. 25:407-8. June, 1913.

City Planning Studies for the National Conference on City Planning. Illust. April, 1913. Supplement to Landscape Architecture, Harrisburg, Pa.; 24 pages of plans and city planning data.

Morgan, J. Pierpont, Family Monument of. Illust. M. N. 25:349. May, 1913.

Sculpture at this Year's Beaux Arts Salon. Illust. M. N. 25:412. June, 1913.

Sculpture, Freak, International Exhibit of. Illust. M. N. 25:335. May, 1913.

St. Louis German-American Memorial, Models for. Illust. M. N. 25:408-9. June, 1913.

Straus Fountain Memorial in New York, Competition for. Illust. M. N. 25:336-7. May, 1913.

Gardens and Landscape Gardening.

Garden, Designing the, by G. Tabor. Illust. Outing, New York, 182-7. May, 1913.

Garden-Art, Old and New, Exhibition of in Berlin. International Studio, New York, 49:236-9. May, 1913.

Gardens, Our City, by M. Maeterlinck. Bookman, New York, 37:257-61. May, 1913.

Gardens, Small, for Small Places, by

F. F. Rockwell. Illust. A. H. G. 10: 153-6. May, 1913.

Iris for Everybody's Garden, by Mrs. W. R. Wilder. Illust. G. M. 17:297-300. June, 1913.

Parks, Cemeteries, Public Grounds.

Bridges and Bridge Approaches, by Frank Koester. Illust. Am. C. 8:467-72. May, 1913.

Fertilizer Benefits, Important Facts Regarding, by Franklin Noble. G. C. A. 16: 508-10. May, 1913.

Greenhouses, Light in, by George E. Stone. Hort. 17:823. May 31, 1913.

Hopkins, Cyril G., Soil Builder. Review of Reviews, New York, 47:302-4. March, 1913.

Village Greens and People's Parks, by Harry Maas. Illust. G. K. (German) 15:124-7. May, 1913.

Trees, Shrubs and Plants.

Chinese Arbor Vitae, by F. T. Ramsey. Illust. N. N. 21:176-7. May, 1913.

Phloxes, Hardy for Midsummer and Early Fall, by Richard Rothe. Illust. Hort. 17:702. May 10, 1913.

Rhododendrons, Utility of. Illust. G. C. A. 16:507-8. May, 1913.

Sidewalks, Relation of to Shade Tree Planting, by James L. Grimes. Illust. Am. C. 8:499-501. May, 1913.

Shrubs, Raising Your Own, by John Dunbar. G. M. 17:307-8. June, 1913.

Publications Received.

"The Reforestation of Cut-Over and Idle Lands in New York," Bulletin 1a of the New York State College of Forestry; 16 pages, illustrated; "the State Ranger School of the New York State College of Forestry," Bulletin 1B of the college. Copies of these interesting bulletins may be had from Syracuse University, Syracuse, N. Y.

"Spruce Bud Worm and Spruce Leaf Miners" is the title of Bulletin 210, just issued by the Maine Agricultural Experiment Station. For the past two or three years the spruce bud worm has proved the most serious pest of the spruces in Maine. A copy of Bulletin 210 will be sent to any resident of Maine upon request to Director Chas. D. Woods, Orono, Maine. To non-residents of Maine the price is 10 cents, which must be sent in coin or other currency. Postage stamps are not accepted.

"A Citizens' Movement to Reduce the Tax Rate;" commercial organization applied to the forestry problem in Massachusetts; an interesting eight-page brochure of the Massachusetts Forestry Association; Harris A. Reynolds, secretary, 4 Joy street, Boston.

"Not only the City Beautiful," address of President J. Horace McFarland to American Civic Association, reprinted in booklet form by that organization.

Pennsylvania Arbor Day Manual for 1913; illustrated book of Arbor Day exercises of 182 pages, published by the Department of Public Education, Harrisburg, Pa.

"A Man's Duty," advertising folder from Ferncliff Cemetery, Woodlands, N. Y., accompanied by illustrated blotter.

The Maine Agricultural Experiment Station, Orono, Me., has also issued Bulletin No. 209 on the "New Mineral Fertilizer." This Bulletin contains the account of an experiment in which corn and potatoes were grown without fertilizer, with ordinary commercial fertilizers, and with so-called New Mineral Fertilizer. The yields were the smallest where New Mineral Fertilizer was used, a little larger where no fertilizer of any kind was used, and much larger yields were obtained with regular manures.

The *American Botanist*, published by Willard N. Clute & Co., Joliet, Ill., has been merged with the *Fern Bulletin*, beginning with the January issue. The *Fern Bulletin* was for twenty years the only publication in the world devoted to American ferns, and the new magazine will make every effort to enable readers to find and identify the ferns and to become familiar with their interesting peculiarities.

The Utica Cemetery Association, Utica, N. Y., in order to stimulate the consideration of perpetual care among its lot holders, distributed a neatly printed "Keep it

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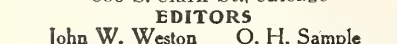
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PARK AND CEMETERY
AND
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in Mind" postcard-size leaflet, upon which the desirability of such care and the gratification it affords are invitingly set forth. This is another of the good ways of keeping attention upon this question of "Perpetual Care."

Valhalla Cemetery, St. Louis, sends a handsomely printed, illustrated, descriptive book of the grounds that is executed in beautiful typographical style.

Catalogs received: Vaughan's Seed Store, 1913; Storrs & Harrison Co., Spring, 1913; Flansbrough & Potter Co., Leslie, Mich.; Eastern Nurseries, Jamaica Plain, Mass.; Wholesale Trade List; E. E. Stewart, Rivers Junction, Mich., Wholesale Trade List of Gladioli; "Lawn Vases and Park and Cemetery Refuse Cans," illustrated catalog from the Steel Basket Co., Cedar Rapids, Ia.; "The Old and the New," a beautifully illustrated book from the Vermont Marble Co., Proctor, Vt, showing famous classic examples of memorials and some modern types studied from them that have been executed by this company; price list and catalog for 1913, Northboro Dahlia and Gladiolus Gardens, Northboro, Mass.; illustrated catalog and price list of the "Little Tree Farms" of the American Forestry Co., 15 Beacon street, Boston, Mass.; calendar bearing handsome colored picture from Hopedale Nurseries, Hopedale, Ill.

PERSONAL.

Mr. H. A. Caparn, landscape architect, New York City, has removed his office to the Candler building, 220 West Forty-second street.

Mr. Charles N. Lowrie, landscape architect, New York City, has removed from 103 Park avenue to 101 Park avenue.

Mr. Roy Weirick, city landscape architect of Des Moines, Iowa, has been placed in charge of all playgrounds.

Messrs. Smith & Eighmy, landscape architects, of Detroit, Mich., have dissolved partnership. Mr. C. E. Eighmy is now associated with Charles Kern Fiedler, landscape architect, at 1913 Ford building.

Messrs. Clark & Pike, landscape architects, of Willoughby, Ohio, have just completed and delivered plans for the improvement of the public park at Medina, Ohio. The work is in charge of Medina Civic



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March 4th, 1913

Gentlemen :

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1021-1027 Grand Street :: HOBOKEN, NEW JERSEY

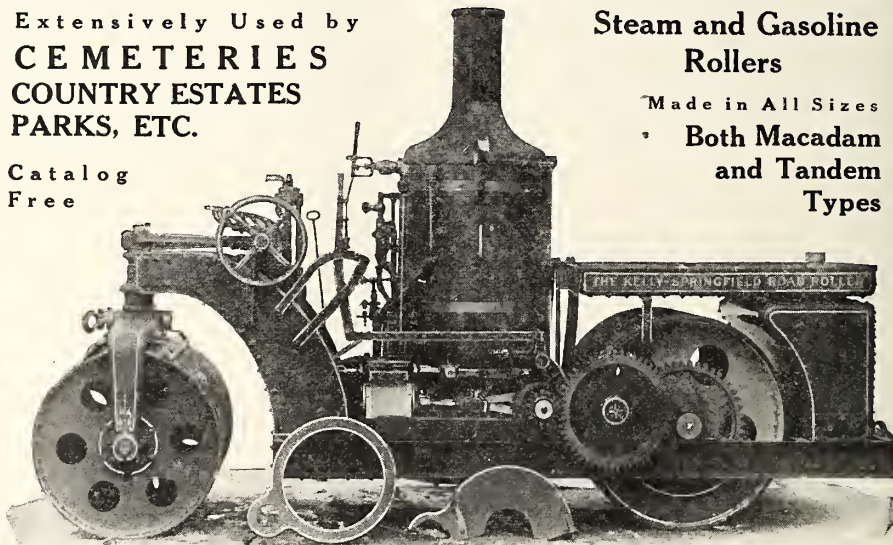
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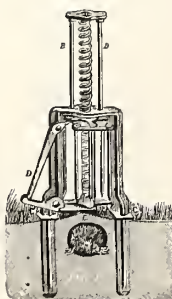
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Improved Reliable Mole Trap

This trap is constructed entirely of steel and iron. Each trap is packed in a strong paper box.

Carried in stock by Jobbers,
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"Ground Moles: Their Habits, and How to Catch Them," a book, free.

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Elastic Pruning Paint

Saves Girdled Trees, Heals Cuts and Wounds, Prevents Decay, Stops Bleeding in Pruning, Cures Fungus Growth.

A Positive and Effectual Remedy for the Treatment of Fruit and shade Trees When Damaged

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IN VALUE OF
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MONUMENTAL WORK
1910 TO 1911
\$ **450.232.00**

LOSS

IN VALUE OF
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MONUMENTAL WORK
1910 TO 1911
\$ **450.788.00**

THE GOVERNMENT SEARCHLIGHT

has again been turned in the direction of the quarries. As a result the United States Geological Survey, Department of the Interior, have issued their report. It is called "The Stone Industry of 1911," and it bears the imprint of the Government Printing Office at Washington. Examine its tables and you can verify the figures shown in the illustration.

From 1910 to 1911, while marble monumental work was going ahead \$450,232.00, granite monumental work was going back \$450,788.00. These figures prove that the marble industry is growing steadily and consistently. Speak of memorials today and you suggest marble.

VERMONT MARBLE COMPANY

PROCTOR VERMONT

BOSTON=NEW YORK=PHILADELPHIA=WASHINGTON
CLEVELAND=CHICAGO=ST. LOUIS=KANSAS CITY
SAN FRANCISCO=TACOMA

Improvement Association, Mrs. Bessie McDowell Hewes, president. The above firm will have charge and supervision of the work.

OBITUARY.

We regret to announce the death of Mr. R. Edouard Andre, a distinguished French editor and landscape architect of Paris, France. He was also a professor in the National School of Horticulture.

OUR FRONT COVER PICTURE.

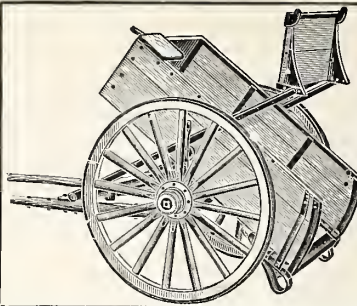
Those of our readers especially interested in civic improvements, more particularly landscape architects, park boards, cemetery associations and playground superintendents, will be impressed with the excellent design of iron fence and entrance gates pictured on the front cover of this issue.

This massive and artistic iron fence and entrance gateway is a special design executed by the Stewart Iron Works Co., Cincinnati, O., and bears their stamp of originality in designing and construction. Some of the larger parks and cemeteries throughout the country, we are told, are adopting this style, and wherever erected it has created very favorable comment because of its solidity and beauty.

The fence shown is constructed of $\frac{3}{4}$ -inch square pickets, set diagonally, spaced 5 inches on centers, and is 6 feet high, set. Their patented reinforced 2x $\frac{3}{4}$ -inch three-rib channel rail, adjustable line post, center support and other patented features are embodied in the construction of this fence.

The large double gates deserve particular notice. The design has been worked out to fit the style of the fence to a nicety. The otherwise plain appearance of the gates is relieved by the unique wrought iron scroll work at top and bottom. They are 14 feet wide and 12 feet high, hung on eye and socket hinges, with 2-inch square hinge bars and so designed that they swing perfectly free at all times without the possibility of getting out of alignment.

"Suitable gates and arches to a cemetery mean more than a mere entrance way if designed appropriate to the surroundings," writes Mr. Stewart, of the Stewart Iron Works Co. "They serve as a sort of curtain raiser—an indication of what is on the inside. One's expectation of delightful grounds, beautiful flowers and charming landscape features are usually accelerated when the approach to the cemetery is marked by a pretentious entrance. A cemetery may possess an indescribable charm in the views of its natural scenery, may be dotted with monuments of unsurpassed elegance and maintained in a first-class manner, but if it lacks an attractive iron entrance gateway, it leaves an unfinished condition."



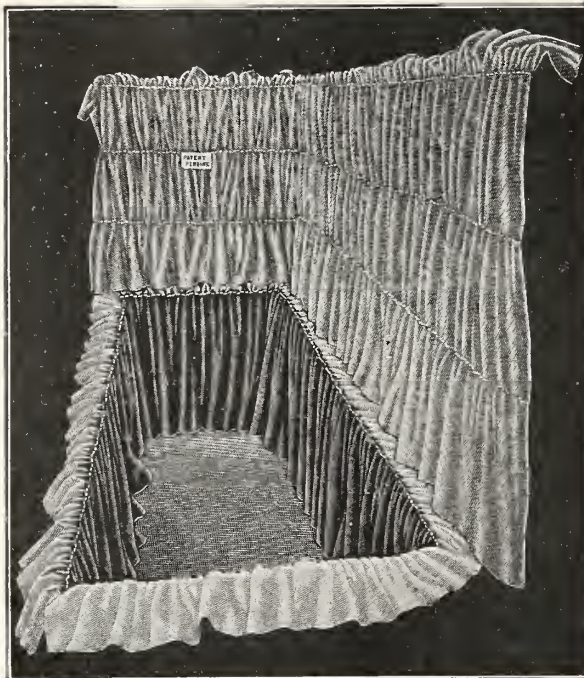
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Holds any load. One cubic yard capacity. Heavy wheels and axle—strongly built of well seasoned oak. Iron braced box. Automatic dumping device. Horse need not stop or man leave cart to dump load. Saves its cost in a few months. For prices and full information write TODAY.

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made to order. Our olive green tents blend with nature and take away the fair ground appearance of the ordinary tent.

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Our olive green duck dirt covers last four times as long as any oil cloth cover, and always look better.

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LOWERING DEVICES, CEMETERY TRUCKS, CASKET RACKS, and a full line of all undertakers' supplies.

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Cemetery work a specialty, of which I have had 23 years' experience.

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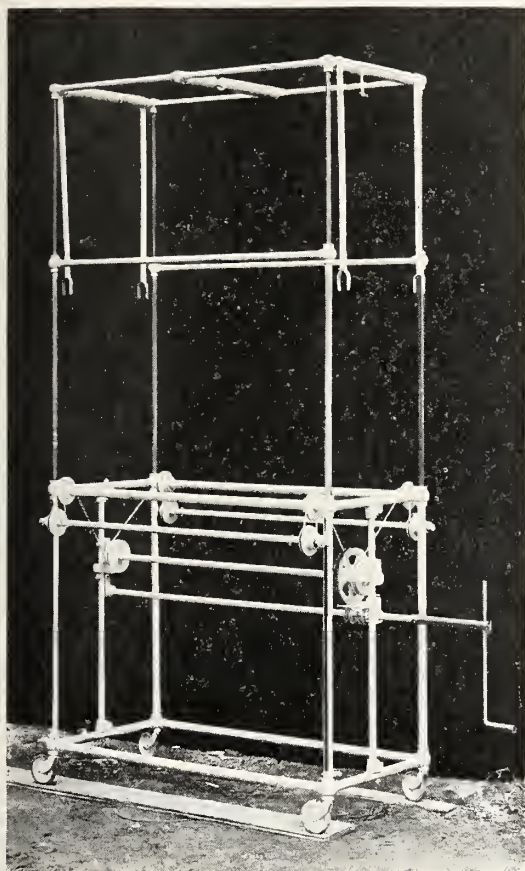
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New York

CEMETERY RECORDS

Simple and Efficient Systems of Records for Cemeteries of all sizes. Ask for prices and sample pages.

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CUT No. 1 shows the Bomgardner Adjustable Private Mausoleum Elevator for placing caskets in 3rd, 4th and 5th crypts; also for private compartments in community mausoleums.

Weights 150 lbs., and takes up but 30 x 48 inches space on the floor. Is strong enough for any case.

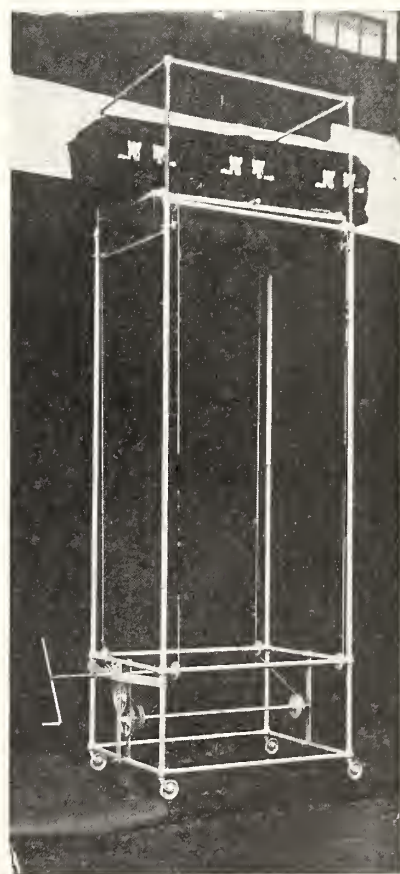
Sent on approval.

CUT No. 2. The Bomgardner Community Mausoleum Elevator. The one shown elevates the casket to the 6th crypt. The casket rests on rolls which are connected by sprocket chain and by turning a crank attached to the center roll, the casket is moved into the crypt very easily. Note the mechanism and sightliness of the make-up.

Sent, as are our lowering devices, cemetery trucks, mausoleum trucks and cement vault trucks on approval.

WRITE

Bomgardner Mfg. Co.
CLEVELAND, OHIO



CEMETERY NOTES.

(Continued from Page 87.)

Ia., according to the report recently to hand, amounted to \$7,059.75, with expenditures of \$4,981.66. The perpetual care fund has now reached \$11,355.20, and the general fund \$8,874.73. A change was made in the price for perpetual care, which is now 20 cents per square foot on all lots. On the recommendation of the secretary and superintendent, Mr. Leroy Christie, the depth of graves was set at five feet. The purchase of seven acres of land is contemplated to carry out the plans of Mr. S. W. Rubee, of Marshalltown, Ia., who plans the landscape work for the association.

Railway Gardening Association.


The Seventh Annual Convention of the Railway Gardening Association will be held in Nashville, August 12 to 15. Headquarters will be at the Tulane Hotel. C. H. Tritschler, 2716 Craft street, New Orleans, is president of the association, and W. F. Hutchison, Sewickley, Pa., secretary.

PUBLIC COMFORT STATIONS.

(Continued from Page 71.)

In Columbia Park the comfort station is a combination building, one portion for men and another portion for women, the two portions being separated by a shelter space which is covered with a roof, but open on two sides. The area of this shelter space is increased by a covered porch which extends the full length of the building.

The women's room contains three closets, a wash sink and a slop sink. The men's room contains three closets, four urinals and a wash sink. All the closets and urinals are of the local vented type, connected into a system of ducts leading to the attic space, which in turn is ventilated through louvred dormers. Two electric fans are provided in connection with the ventilating system. The entire building, including rooms, shelter and porch, has a floor of concrete with inlaid borders and patterns of brick. The walls are of red brick to a height of two and one-half feet above the ground, and frame covered with plaster and half-timber above. The roof is of shingles laid in thatched effect, rounded onto the verge boards, etc. The woodwork is stained brown and the plaster is left in its natural color.



**Path and
Avenue
Signs**

Lot Markers



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PORTLAND CEMENT GRAVE AND LOT MARKERS




Made 3-inch, 3½-inch, 4-inch, and 5-inch diameters; 8, 10, and 12-inch lengths, and all kinds of top marks. Nearly white in color and practically everlasting. Made under Haase Concrete Wks. Patents No. 680,432 and 734,854. For circulars and prices, Address OAK PARK, ILL.
Cemeteries West of Rockies Address, LEO. G. HAASE, Pasadena, California



WHITE GLAZED Terra-Cotta GRAVE AND LOT MARKERS



Durable as Granite White as Marble Cheap as Wood

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Bellett Lawson, Jr.
Care **ELMWOOD CEMETERY**
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Galvanized



**THEY
NEVER
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Also Made With

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CARE**

**Cast Iron Grave
and Lot Marks**

Marks for Numbering Graves, Lots and Sections

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Station A Cincinnati, Ohio

Modern Park Cemeteries

By HOWARD EVARTS WEED, M. S., Landscape Architect

A New Text Book on Modern Cemetery Planning and Management

The author discusses every phase of cemetery affairs with the assistance of cemetery experts

Cloth, 145 Pages. Price, \$1.50. Postage, 10c.

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"The Wellman"

King of Hoisting Devices

Fills all Requirements of Public
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THE "Wellman" is the only Hoisting device on the market from which caskets can be loaded or unloaded from either side or end, and with upright extensions furnished can be adjusted to any height. Extensions permitting of hoisting and lowering of caskets through chapel floor.



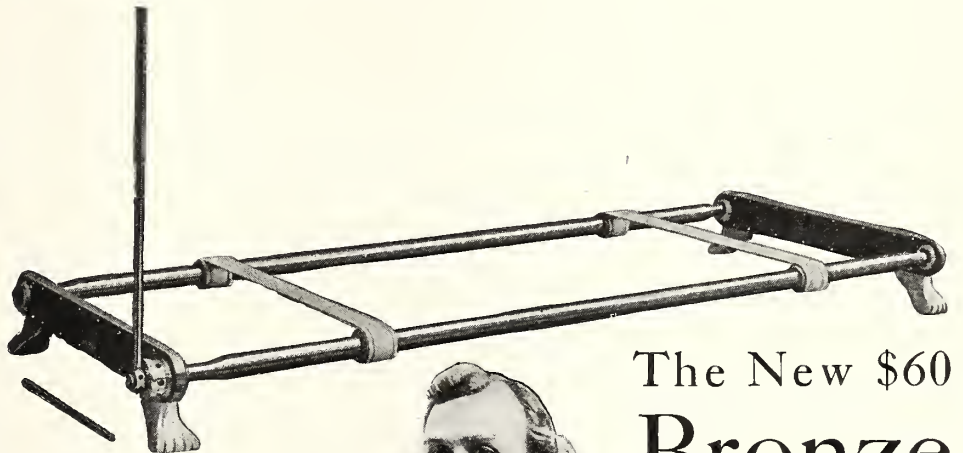
Safer than Pall Bearers

The Wellman

King of Lowering Devices

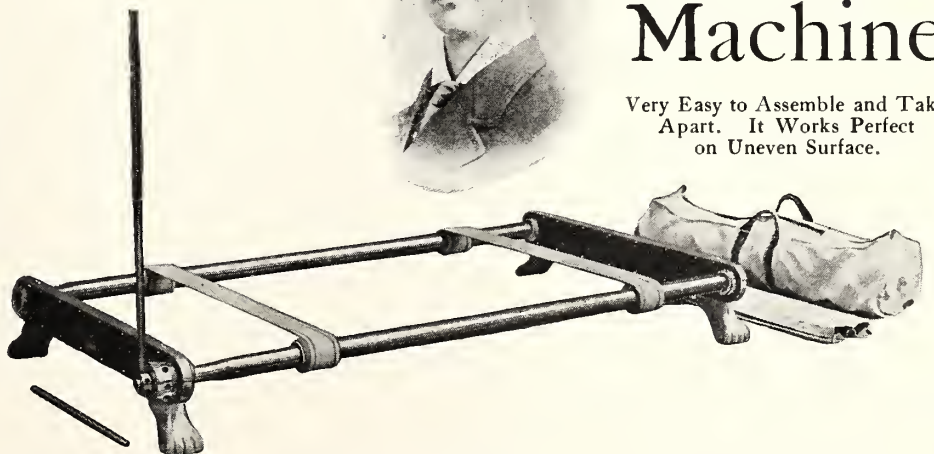
The top cut on this page shows the machine in the adult size. The bottom cut is the machine when adjusted for the child. The canvas cases at end of bottom cut is the machine when packed for transportation.

For Full Particulars, Write



The New \$60 Bronze Machine

Very Easy to Assemble and Take
Apart. It Works Perfect
on Uneven Surface.



WELLMAN, The Device Man

::

Oshkosh, Wisconsin

Cemetery Reports.

West Laurel Hill Cemetery, Philadelphia, Pa., has just issued a handsome booklet on the subject of endowments and bequests, which affords the information necessary to an understanding of the several details involved. It describes the care given to the lots under the several heads and presents some beautiful suggestive illustrations of lots on the cemetery grounds.

The sixty-fifth annual report of Swan Point Cemetery, Providence, R. I., to December 31, 1912, has been issued and is as interesting as usual. It reports the adoption of the plan of the Messrs. Olmsted Bros., Boston, for the lay-out of the new part of the cemetery, between the Swan Point road and the boulevard. A large amount of work in caring for the trees, and destroying destructive insect pests, was carried out, and nearly 65,000 square feet of roads and avenues were constructed during the year. The cash receipts for the year were \$167,777.33, which included sales of lots, \$31,415.50; labor and material, \$18,535.22; tomb rent, \$1,210.50. The expenditures were \$52,065.58. This included: Labor in the cemetery, \$27,196.95; labor in the greenhouse, \$1,635.41; labor, teamsters and hostlers, \$4,456.35; trimming and repairing trees, \$2,891.62. The perpetual care and bequest fund is \$478,736.82, and the permanent fund \$147,555.48. Average number of men employed, 63; interments, 308; total to date, 18,672. Number of lots under perpetual care, 2,345; under annual care, 439. The pamphlet also contains the Act of Incorporation; By-Laws of the Corporation; Rules and Regulations; Forms of Deeds, Transfers, Bequests, etc., and a catalogue of proprietors.

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10 cents a line each insertion: 6 words to a line; minimum price 50 cents. Copy must reach us by the 1st of the month.

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No. 1. Canadian Unbleached Hardwood Ashes, Nature's own Fertilizer for grass. No fertilizer equals my Ashes. Price and freight rates quoted, correspondence solicited. George Stevens, 104 Douro St., Peterboro, Ontario Canada.

VINCA MINOR MYRTLE.

Strong field-grown plants \$2.50 per 100, \$24.00 per 1,000.

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Madeira Nurseries. Madeira, O.

SITUATIONS WANTED.

Wanted—Position by competent young American man, married, as assistant superintendent or construction foreman in public park, or to have charge of private estate. Seven years' experience in a first-class park system. References furnished. Address "Connecticut," care of Park and Cemetery.

Experienced and reliable cemetery superintendent desires to make change. In recent position six years. Exceptional references as to character, etc. Geo. J. Murrell, Melrose Park, Ill.



THE DAVIS ROAD BRUSH FOR GRAVEL AND MACADAM ROADS

Especially valuable for Parks, Cemeteries and Private Grounds. Conforms to crown of road. Cleans and smooths at one operation. Shifts road material slightly towards center and drops coarser material in ruts and lateral washes. Useful in applying calcium chloride.

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FOR Baled Spruce, Balsam and Hemlock Boughs, Hardy, Cut, Fancy and Dagger Ferns, Bouquet Green Laurel and Festooning in bulk,

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**PARK and
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And always mention the
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Squier's Weed Killer Is Supreme, Because—

It kills every kind of vegetation with but one application a year and prevents regrowth. One gallon covers 300 square feet. Can be applied at any time; is odorless. Leaves ground clean, dry and hard. Simple: Just add twenty gallons of water to each gallon of Squier's Killer and sprinkle.

1 gallon \$1.25; 5 gallons \$5.50; 10 gallons \$10.00; 1 barrel (46 to 52 gal.) at 71c per gallon.

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Modern Park Cemeteries

By HOWARD EVARTS WEED, M. S., Landscape Architect

A New Text Book on Modern Cemetery Planning and Management

The author discusses every phase of cemetery affairs in which he has been assisted by Mr. Wm. Salway, Spring Grove Cemetery, Cincinnati, O., Mr. Wm. Falconer, Allegheny Cemetery, Pittsburg, Pa., Mr. James Currie, Forest Home Cemetery, Milwaukee, Wis., and Mr. M. H. West, Landscape Architect. The list of Contents and Illustrations which follow will convey some idea of the scope of this latest and most valuable contribution to cemetery literature.

Contents—Cemetery History and Burial Customs in America; The Organization and Ownership of Cemeteries; The Proper Location for a Cemetery; The Cemetery Plan; General Construction Work; Road Construction; Landscape Development; The Superintendent and His Duties; Mausoleums, Monuments and Headstones; Rules and Regulations; Perpetual Care Fund; Cemetery Records; The Cemetery Buildings; Charges for Lots and General Services; The Improvement of Old Cemeteries; Cremation; Cemetery Law; Cemetery Literature and the A. A. C. S.

Illustrations—Spring Grove Cemetery, Cincinnati, Ohio; A Too Common Condition; Cemetery on the Lawn Plan; Hill Crest Park Cemetery, Plan of; Sections A and B; The Old Style Plan; Topographical Survey; A Water Effect is Always Pleasing; A Mausoleum Poorly Designed; A Mausoleum Properly Placed; A Monument Badly Placed; A Monument with Proper Setting; Natural Boulder Monuments; Chapel and Waiting Room; Evolution of New England Cemetery; Park Scene, Galt, Ontario; Arrangement of Sections; A Modern Cemetery; Artificial Lakes; Correct and Incorrect Grading; Views in Graceland, Chicago.

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Interment Records and Lot Diagram Books to fit every cemetery's needs. Ask Park and Cemetery for prices

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Kill Weeds

Easily and Permanently

Don't waste time and labor CUTTING or DIGGING weeds and grass out of roadways, gutters, streets and tracks. Simply sprinkle them with a little diluted

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Puts them out of business so they won't come back to bother you for years, because it kills the roots.

One Application is Enough.—The hardest, most impudent, most persistent weeds that ever grew are quickly killed—killed to stay killed—by one application of Key Brand Weed Killer. And you can apply it in a fraction of the time that cutting or digging them would require.

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TRIAL OFFER.—We will send a 5-gallon can—enough to make a thorough test—for \$3.75. Write for prices on larger quantities. Money back if not satisfactory.

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Solves
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Road
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Positive Guarantee:

Your money promptly refunded without question if Key Brand Weed Killer fails to do all we claim.

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Drums 70-gals.	.50 per gal.	Kegs, 10-gals.	.70 per gal'
Barrels 50-gals.	.50 per gal.	Kegs, 5-gals.	.75 per gal'
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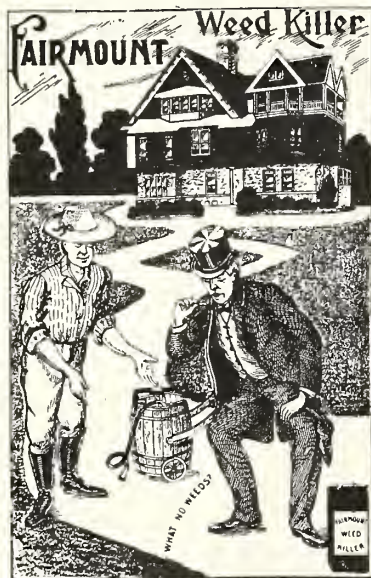
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TRY OUR WAY AND YOU WILL NEVER BE CONTENT WITH ANY OTHER

Fairmount Weed Killer ONLY Does the Work Right

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IF you like this very ornamental and beautiful type of gate with massive posts, tell us the width of your driveway and sidewalks, and let us suggest something like it. Sketch us your ideas and let us estimate the cost for you, or tell us what you want and get our ideas and prices.

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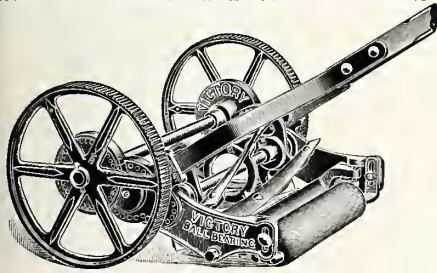
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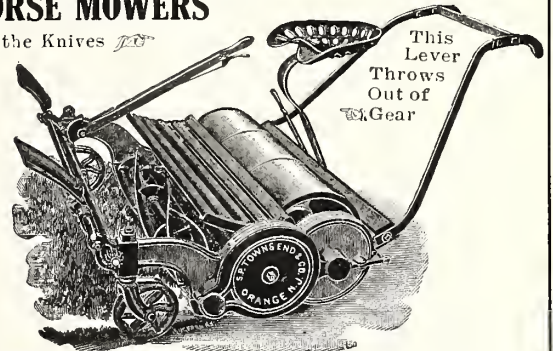
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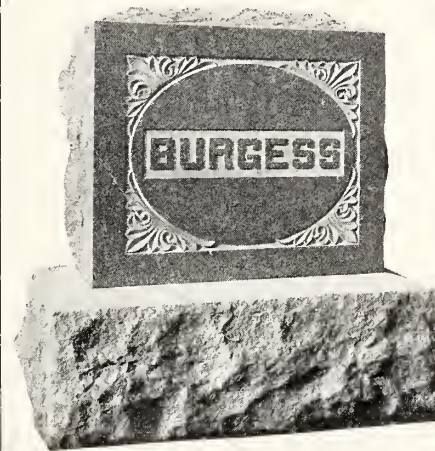
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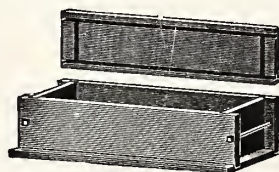
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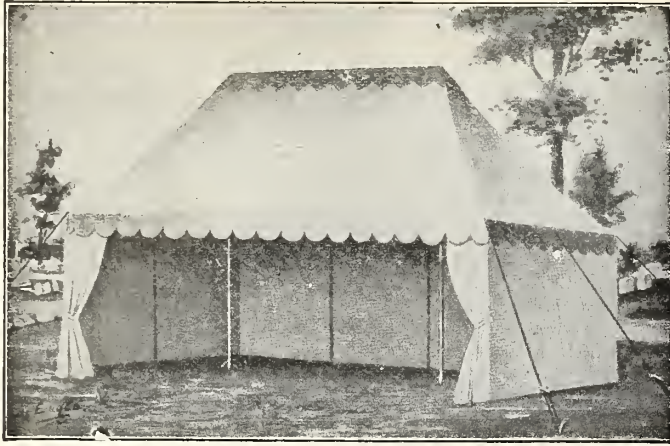
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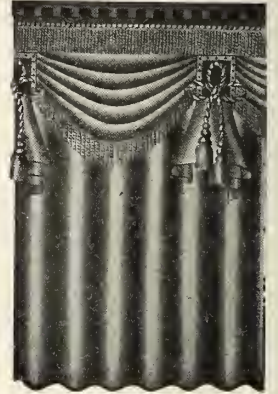
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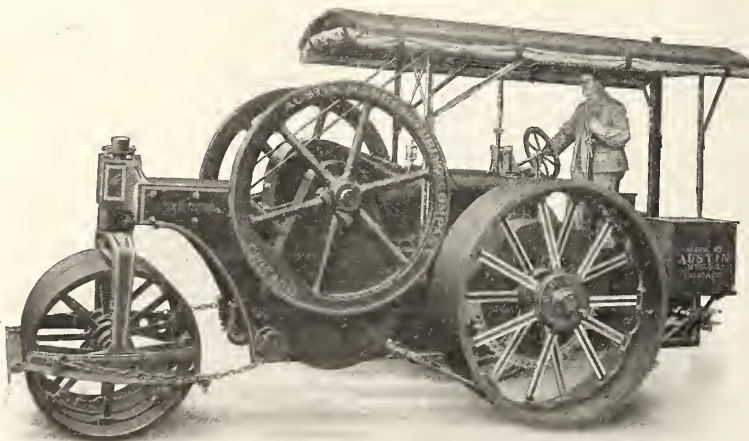


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Vol. XXIII.,

No. 5

JULY, 1913

ROADS AND PLAYGROUNDS ISSUE

Chicago Play Parks and Their Service—Cemetery Road Making
With Tar-Macadam—Simple Forms of Playground Apparatus—
Efficient Type of Merry-go-Round—Asphaltic-Concrete Road
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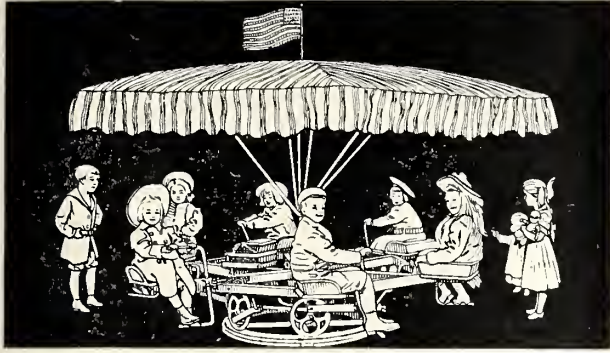
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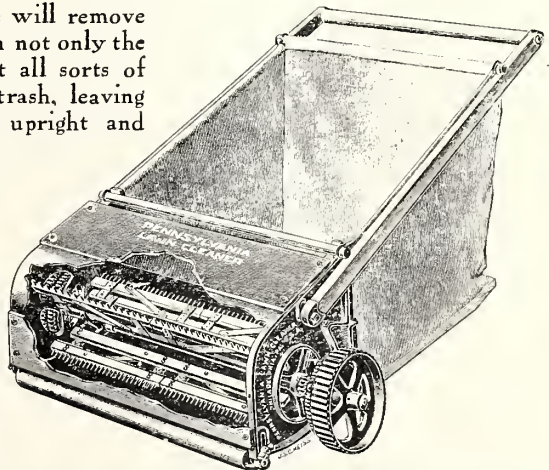
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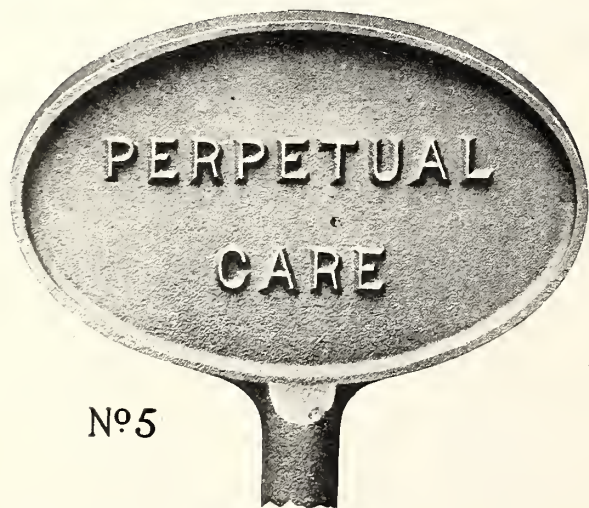
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No 5

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VOL. XXIII

JULY, 1913

No. 5

EDITORIAL

Getting Started In Playground Work

There is scarcely a day that does not bring to the observant student of park affairs evidence that the playground movement is growing faster than almost any development in modern park affairs. Playgrounds and service parks are now being installed in every well-conducted park system, and it is only a question of time when they will be important features of every park system, large or small. Even the smaller cities are now making beginnings at playground work, and we are giving special attention to playground study this month in the hope that it may be of assistance to others who have not yet made the beginnings of playground or park service work in their communities. This work can be started, as is pointed out in some contributions in this issue, on a very small scale, and the expense for the first few years need not be heavy. When the value and the popularity of playgrounds and service parks are demonstrated in a small way, citizens and public officials will no longer be willing to be without them and the people will demand them. When they demand this service a way will be found to get increased appropriations for the work. Playgrounds and park service are essential parts of our public education, and where it has not already been done the school yards during vacation time can well serve as playgrounds. No better use can be made of them and of the school buildings during vacation periods. It takes very little effort or very little money to transform a vacant lot into a useful playground and a school yard needs only the addition of a very little apparatus and a very little supervision to make an excellent playground of it. In Moline, Ill., the Playgrounds Committee of the Civic Department of the Woman's Club is endeavoring to establish and conduct playgrounds for the children of Moline. It desires first of all to have a playground in Riverside Park. As a starter, two tennis courts have already been donated, and the city has volunteered to keep a sandpile for the children on the grounds. In addition, city commissioners have indicated that when it comes to making up the city's annual budget an appropriation of some money will be made for the enterprise. It is recognized, too, that such a playground will need supervision. Three local men have already pledged \$180 for such supervision for the first

three months. It is believed that the grounds should be supervised from 9:30 in the morning to 8 in the evening. This time could be divided into two periods, one supervisor to be in attendance the first half of the day, another the last half. Competent women can be secured in rotation for these tasks, each to get \$30 a month for the half day's service. The Playgrounds Committee estimates that it will take \$700 to \$1,000 for additional equipment for the Riverside Park grounds. This would be equipment on the cheapest scale. But it would be enough for a start this season if the money can be raised quickly, now that school is out. There ought to be no difficulty in raising this money, and the methods by which Moline is making a beginning in playground work can be followed in any community. The arguments for playgrounds are unanswerable and make instant appeal to every patriotic citizen, when proper publicity is given them. For example, an editorial that recently appeared in the *St. Louis Republic* puts the case so forcibly under the heading, "Prisons or Parks," that it would be of great assistance in arousing sentiment for playground work if it were circulated in any community. We quote it as follows:

"If a boy has no place where he can play ball he is very likely to exercise his pitching arm by throwing stones through windows of vacant houses. If he has no place where he can pretend that he is a bandit he may turn out a sneak thief in good earnest. The instinct of play is as natural as that for food. Young animals, the human included, take their pleasure by doing in sport what their parents do from necessity. Playing "keep house," playing "war," playing "horse" and playing "fire" are natural expressions of deeprooted instincts of childhood. If they can find no proper environment for their expression they become warped and evil. All of these observations are commonplace, but there is a vast bulk of adult humanity which vaguely recognizes their truth but fails to see the duty that is involved in their assertion. Such persons view play not as a necessary function of childhood, but as an infirmity of the child to be outgrown as soon as may be. There are the men who tie a hard knot in their pure strings when anyone says parks. But Park Commissioner Davis takes a different and an enlightened view of the matter. He is asking St. Louis for a large sum of money to provide parks and playgrounds for children. He proposes to study the records of the juvenile court to see where youthful offenders are most numerous. In those localities he means to provide playgrounds where children may go about the very necessary business of playing under conditions such that their abounding energy and inventiveness shall not be turned into harmful channels. For proof that this policy is sound, he cites the fact that juvenile offenses have been reduced by half in neighborhoods where parks have been established. That brings the whole matter to a head. Shall St. Louis pay for courts and prisons and take its returns in protection from criminality or shall it pay for parks and reap a profit of good men and women?"

Cemetery Legislation

In view of the trouble concerning the taxation of perpetual care funds in Massachusetts, which was in force for a while, but abolished by a recent act, it would be well for cemeteries in other states to inform themselves on the legal status of their funds, as they may encounter the same trouble as was encountered by the Milford Cemetery, whose taxation brought about the passage of the bill printed in our last issue. While the Milford Cemetery is now relieved of this burden, the taxes already unjustly paid cannot be recovered and it is well to look out for

these matters before they become pressing. It is very probable that similar bills will need to be passed in other states in order to avoid the possibility of taxing large funds for perpetual care and repair work. Legislators are looking for many things to tax and reform, and the misapprehension prevailing among them that cemeteries are big profit-making institutions may lead to similar efforts toward taxation of perpetual care funds. Cemetery legislation is a very important subject and it is well to keep accurately informed on its status in every state and at all times.

CHICAGO PLAY PARKS AND THEIR SERVICE

Nowhere in the country can the modern play parks and the various service features identified with them be studied to better advantage than in Chicago. The South Park system has long been noted among park men for the most extensive development of the small service parks in the country, and within recent years the West Park system and the Lincoln Park system of the North Side have also made substantial advances in this direction.

The latest and in many respects one of the most interesting of the play parks of the South Park system is Fuller Park, which was partly completed and opened last summer and is this season practically complete in all its facilities. The plan of the park and the illustrations of the buildings shown here are typical of the admirable arrangements and fine type of structures of the South Park system.

The buildings are of the interesting monolithic concrete construction utilized in most of the play parks of this system. The swimming pool is tile lined, and is the finest yet installed in any of the small

parks of the city. The buildings include gymnasium, club rooms and assembly halls, reading rooms, shower rooms and other accommodations, and a branch of the public library is maintained.

A number of large elm trees were purchased and planted in the gymnasiums for shade; the remainder of the planting and all other work which is necessary to finally complete the park was done this season.

The park is surrounded by an iron fence $5\frac{1}{2}$ feet in height and a concrete sidewalk 8 feet in width. The lighting of the park is by means of incandescent lamps in 14-inch globes on iron posts 10 feet in height, the posts being placed along the walks at intervals of about 50 feet. The current for the lighting is received from the Sanitary District through the Washington Park sub-station.

The administration of this and the other small parks that have playgrounds and field houses is interestingly described in the annual report of the commission recently issued.

The number and character of people em-

ployed to attend, instruct and direct in the management of a single playground and field house of typical size and equipment is as follows: One director (a man), in general charge of the activities of the playground, gymnasiums, ball field, swimming pool, shower baths and all field house functions. This man was selected for his social qualities, administrative abilities and skill in co-operating with or organizing groups for social recreation. His hours of service were at least eight—six days each week—usually from 3 p. m. to 12 p. m. The director was required to work Sundays as well as other days. One day in seven was given as relief, but was taken irregularly and only on days of lightest use of the field house. His salary is \$125 per month.

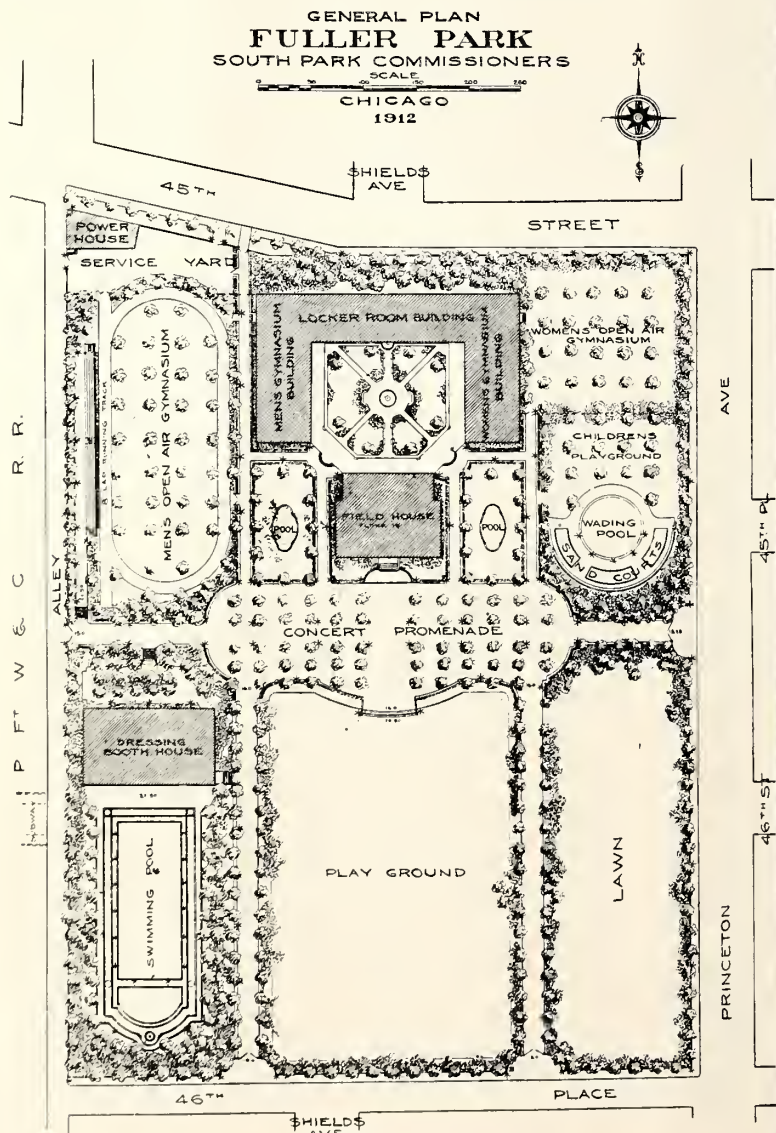
One playground and gymnasium instructor (man) was in immediate charge of the indoor gymnasium during the indoor season and the boys' outdoor gymnasium, running track and ball field during the outdoor season. This man is selected for his training, knowledge and skill in all forms of gymnastics, plays, games and sports of boys and men of all ages.

One playground and gymnasium instructor (woman) is in immediate charge of the indoor gymnasium, the children's playground and the girls' and women's outdoor gymnasium. This woman is selected for her training, knowledge and skill in all forms of plays, games, gymnastics and dances peculiar to the interests of girls and women of all ages.

Both the man and woman in charge of the gymnasium and playgrounds in each center are required to be expert in handling accidents and injuries with approved first-aid implements and methods. These instructors are required to serve a minimum of six hours, six days each week, including Sunday service. Usually the hours of service are from 3 to 10 p. m.

During the school vacation period the instructors are each assigned one assistant, and with the aid of this assistant the playgrounds are operated from 9 a. m. to 10 p. m., seven days each week. Instructors employed throughout the year are paid a salary of \$83.33 to \$108 per month, according to the number of years in service. The assistant instructors, who work only during the school vacation period, are paid \$75 per month.

Two women attendants are assigned to the upkeep and care of the dressing quarters, indoor gymnasiums and bathing facilities of the girls' and women's division of the field house. They also wait upon the patrons of the gymnasiums and baths in every way to give help and satisfaction in the use of the facilities. The hours of service for these women are from 10 a. m. to 10 p. m., including Sunday service. The pay is \$50 per month.





FULLER PARK—ASSEMBLY HALL AND GYMNASIUM BUILDING.

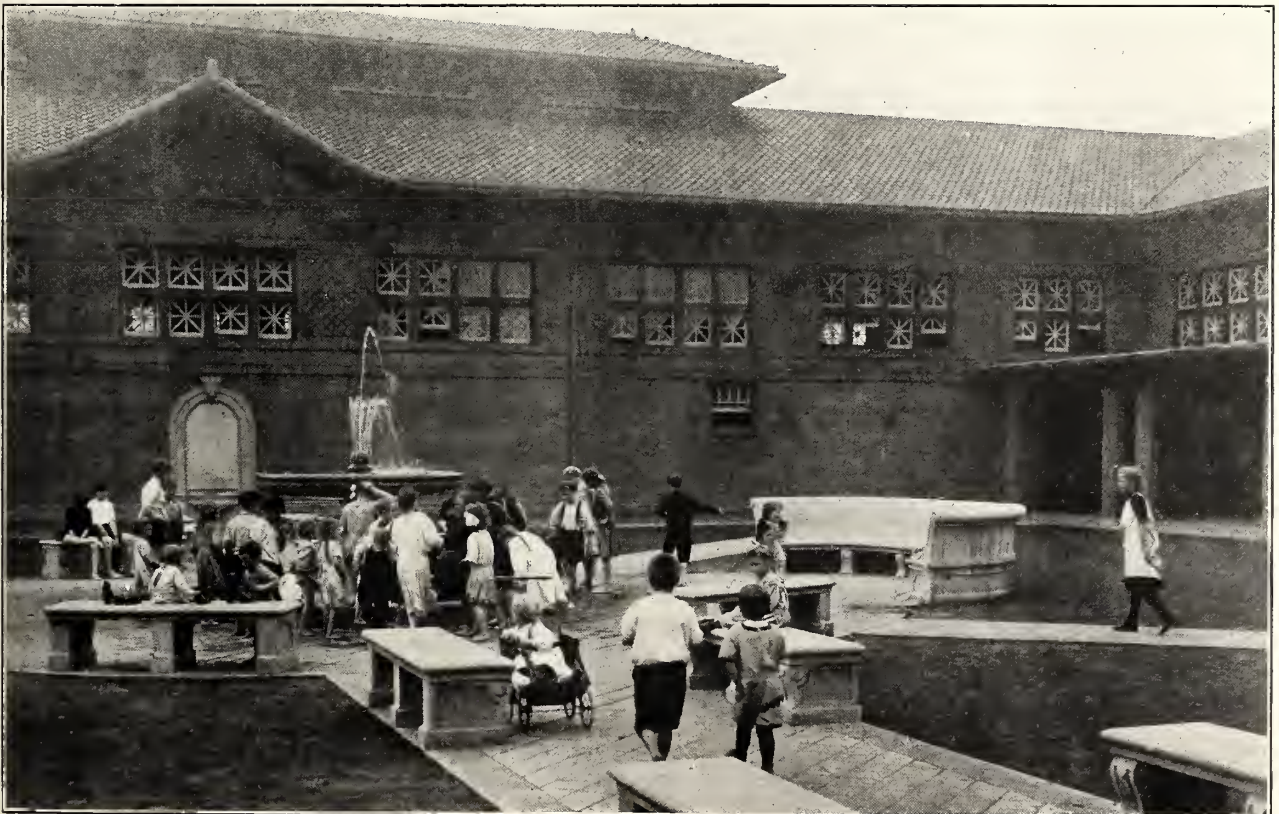
Two men attendants are assigned to the upkeep and care of the dressing quarters, gymnasium and bathing facilities in the boys' and men's division of the field house. They also wait upon the men and boys who frequent the baths and gymnasium,

and in every way endeavor to contribute to safe and orderly use of the facilities. The hours of service for these men are from 10 a. m. to 10 p. m., seven days each week. The pay is \$55 per month.

One day janitor and one night janitor

(men) are assigned to cope with the janitor work of the field house. Each man serves ten hours each day, including Sunday service. They are paid \$50 per month each.

One additional janitor is employed from



FULLER PARK—CHILDREN'S COURT.

June to September, inclusive, because of the greater work of upkeep incident to swimming pool operations. The hours of work and pay of this man are the same as given above for janitors.

dressing quarters of the pool, see that all take the cleansing bath before entering the pool, and control the orderly disposition of bathing suits and towels, and sweep, wash and keep sanitary and clean all dress-

In addition to the above workers who constitute the staff in direct charge of activities and facilities, other workers from other divisions of the park service are assigned to field houses and playgrounds as



WOMEN'S GYMNASIUM AND CHILDREN'S PLAYGROUND, STANFORD PARK.

One building foreman (man) is assigned as supervisor of the work of men and women attendants, janitors, swimming pool guards and attendants. He is also held responsible for receiving supplies, towels, bathing suits, keeping inventory and record of same, answering telephone and assisting the director in handling groups in dance halls and club rooms. The building foreman is also placed in direct charge of the swimming pool from June to September, inclusive. His hours of service are from 10 a. m. to 10 p. m., including Sunday service. His pay is \$100 per month.

During the swimming pool season the above staff is supplemented by the following workers: two to three swimming pool guards (according to size of pool), whose duties consist in safeguarding those who make use of the pools, the care of bathing suits and towels and the sanitary condition of the approaches and surrounding surfaces of the pool. The hours of service for these men are from 10 a. m. to 10 p. m., seven days each week. The pay is \$60 per month.

Two or three men and the same number of women are also employed to serve as swimming pool or dressing booth attendants. Their function is to guard the

ing booths and accessories. The hours of service for these workers are from 10 a. m. to 10 p. m., seven days each week. The pay is \$50 per month for women and \$55 per month for men.

Pianists are employed to play for gymnasium classes during the indoor season, from October to April or May, inclusive, at the rate of 25 to 50 cents per hour.

All of the above workers, for each of the eleven recreation centers, are under the general supervision of one man—the general director of field houses and playgrounds, Mr. J. R. Richards. He is assisted in his supervisory and administrative work by one man, styled general building foreman, whose function it is to give general supervision to the work of the building foremen, attendants and janitors in each of the field houses. One instructor (man) is assigned to supervisory work in athletics, caring for registration of competing athletes and teams, refereeing games and tournaments. He is also placed in charge of playground and gymnasium supplies, keeping record and making periodic inventory of same. One man is also assigned as gymnasium rigger, whose function it was to make mechanical repairs in all gymnasiums and playgrounds.

follows: One to three policemen, one or two men in charge of the lunch room, a foreman and one to six laborers in charge of the upkeep of the grounds, outside repairs, skating preparations and maintenance; also one engineer and one fireman, whose function it is to take entire charge of heating and lighting. The librarian in charge of the reading room and library is supplied by the public library board. Her duties and responsibilities are defined by that board and not by the park authorities.

Mr. John R. Richards, the recently appointed superintendent of the South Side Chicago playgrounds, has been revising the rules governing the small parks and has been establishing a separate group of regulations for each park, to suit the needs of the neighborhood in which the park is located. He says: "Each park will be governed by regulations that peculiarly fit the home conditions of the community where the park is situated." The parks will be so taken to the people that they will become more and more a part of the daily life of the community.

The work of acquiring and developing the small parks and field houses in the West Park system was begun in 1905, when

bond issues amounting to \$3,000,000 were secured.

For many years prior to the passage of the legislation authorizing these bond issues no improvement or extension of the West Park system had been made, and the condition into which the parks had fallen was deplorable. Since then a transformation has taken place in every branch of the system. It is not too much to say that the West Side parks have been rescued from a state of gradual decay and brought to a well-nigh perfect condition by the Board of West Chicago Park Commissioners during the administration of Governor Deneen. Financially, the park system has been placed upon a thoroughly sound basis. The parks and boulevards have been brought to the highest standard of excellence. In the various parks constituting the West Park system, splendid pavilions, greenhouses, flower houses, boat houses, refectories and other structures have been erected, for the accommodation and edification of the public. The plans and specifications for these buildings were

drawn by the state architect, Mr. W. Carlys Zimmerman, and their design has proven in every instance a model of artistic architecture, not only artistic, but practical and substantial throughout.

The West Park Board points with pride to the fact that during the past few years it has maintained the entire system out of the tax levy of each preceding year; that during 1911 alone it saved from its general maintenance fund three-fourths of a million dollars which was available during 1912 for such permanent improvements as field houses, building, and equipment for four small parks which were added to the system last year; and that at the close of Governor Deneen's administration the condition of the West Park system, financially and in every other way, shows such an amount of improvement work as has never been accomplished by any previous board.

From the proceeds of the \$1,000,000 small park bond issue the land for small parks Nos. 1, 2 and 3 was acquired, a total of about fifteen acres, and improved with field house, assembly hall, library and read-

ing rooms, gymnasiums, shower baths, lunch room and club rooms, and outdoor swimming pool and gymnasiums.

As typical of the small parks in this system, a few facts about Dvorak Park and playground will be of interest. The land, about 3¾ acres, was purchased for \$83,873.62, and the field house and other construction work cost \$75,160. This park is located in the Bohemian district of the Southwest Side. It was the first recreation center to be opened by the West Chicago Park Commissioners. The population of this district averages 74,000 people to the square mile. There are five large public schools within a radius of six blocks of this park. The attendance at the swimming pool averages 2,500 per day. The attendance for four months in the children's playground was 36,500.

The Sanitary District of Chicago is now furnishing the current for lighting this park. A fence has been erected around this park and a children's garden constructed between the south wall of the swimming pool and the south fence.

CEMETERY ROAD MAKING WITH TAR-MACADAM

By Philip P. Sharpless.

The road problem, as it is presented to the cemetery superintendents, differs in many vital respects from the road problem of the park superintendent and town engineer. Traffic in any of our large cemeteries is intermittent and irregular. Unlike the traffic of a park, which is composed wholly of light vehicles, with its maximum intensity during the best weather of the year, the traffic of a cemetery knows no seasonal variations. The roads must be ready for service at all times, summer or winter, and must carry not only light traffic, but the occasional severe strain of heavy monuments and building materials.

In common with the park superintendent, the cemetery official must consider the aesthetic appearance of the road and must have a clean road, as suitable for foot traffic as for vehicle traffic. It is also desirable to have a road which inhibits weed growth as far as possible.

A close study of the many phases of this problem has led many superintendents

to adopt some one of the many forms of bituminous construction which have become prominent in the last decade. It is the purpose of the present paper to point out some of the advantages of a refined tar, like Tarvia, in this form of construction and to outline the methods used in successful work.

A road well built with refined tar as a binding material admirably fulfills the exacting condition of cemetery work. The road is good in all kinds of weather the year round; it is easy to keep neat and free from weeds and gives a good surface to walk upon at all times. The form of construction and the appearance of the surface are easily varied to meet local conditions and the aesthetic demands of the situation.

The methods of building successful tarvia macadam roads have become standardized through the experience of the past de-

cade. What is known as the two-coat penetration method is the form usually adopted. The refined tar is spread upon the stone after the stone is rolled in place upon the road. Refined tar is especially adapted to this form of construction, since it liquifies at a low heat, and is easily handled, both through machine sprayers and by hand-pouring methods. When once in place it has sufficient set to make a firm, substantial road.

The methods of construction may be varied to suit local conditions, but the cardinal principles of good foundations and thorough coating of the stone with tarvia, properly heated, should be carefully attended to. The substitution of sized gravels for the corresponding sizes of crushed stone often leads to great economy where gravel is cheap and crushed stone dear. Great care should be exercised to see that the stones on which the tarvia is poured are clean, evenly sized, carefully laid and rolled with intelligence.



Graceland Cemetery, Chicago, Ill.



Mount Pleasant Cemetery, Toronto, Canada.



National Cemetery at Arlington, Va.

SOME TARVIATED CEMETERY ROADWAYS.

The cost of penetration bituminous work varies greatly with local conditions. Comparing the cost with a macadam of equal thickness, the increased cost of a tarvia macadam will vary from almost nothing to the cost of the tarvia, plus the cost of its application. The lower costs are obtained where tarvia is available hot, in tank wagons, from some central plant, and where the cost of the tarvia is offset by a saving in screenings, rolling or quality of stone. The higher costs are obtained where the refined tar must be applied by slower hand methods, with a high freight rate, and when little saving can be effected in materials and labor. Even at the higher costs, the bituminous bound macadam is more economical, since a six-inch road is stronger and more durable than a seven or eight inch plain macadam.

The ultimate surface produced on a tarvia macadam depends upon the details of construction, on the materials used and on the traffic.

Under heavy traffic conditions, such as are met with in town streets and metropolitan boulevards, the surface will in the end become smooth, resembling asphalt or tar concrete. Under cemetery conditions, however, the surface, if so desired, may usually be kept rough with clean pea stone on the surface by regulating the amount of refined tar used in the seal coat and by giving proper attention to the sizes of the stone.

If a smooth surface is desired under light traffic, it is oftentimes necessary to

give a subsequent seal coat, with a lighter refined tar, like "Tarvia B," followed by an application of sand or fine screenings. In any event, this seal coat should be deferred until the original surface has become quite firm and the pea stone or gravel used in finishing it well worked in, so that the surface voids are well filled.

Mosaic top surfaces, where each stone shows on the surface, but does not project, giving the effect of a smooth concrete, are difficult to produce by the penetration method in cemetery work under light traffic. If desired, they may easily be formed by adopting the mixed method with proper stone sizes. Tarvia will be found admirably adapted to this kind of work, and will give uniform and satisfactory results. The mixed work is generally confined to a two-inch surfacing layer, laid over a rolled stone base. Where foundation conditions are difficult, a four-inch concrete base may be substituted.

The cost of mixed work is considerably in excess of penetration work. On small jobs it is safe to figure 25 cents a square yard for the labor of hand mixing. On large areas, using mixing machines, the labor cost of mixing can be reduced to 8 or 10 cents a square yard.

The treatment of road surfaces already in use presents a variety of phases varying from a simple surface treatment with cold materials, at small expense, to a complete reconstruction with new stones along the lines already considered. The modifications permissible in this reconstruction

work are mainly in the direction of reducing the layer of new stone to the lowest possible limit. If the old road is a good macadam, well drained, the new stone may often be safely limited to two inches. It is best to break the crust of the old road by scarifying, harrow it to bring the old stone to the top, and re-roll it well before proceeding with the new stone. The new stone are rolled after placing and the bituminous coatings proceeded with as on a new road.

The true surface treatments, whether of cold or hot tarvia, should be limited to roads which are hard and firm, capable of upholding the traffic which goes upon them in all kinds of weather. The roads answering these conditions are not necessarily macadam roads, since good gravel roads can be successfully treated. The coatings produce a surface crust which lasts admirably as long as it is supported, but if the road beneath gives way, the crust and its advantages soon disappear.

Tars for this purpose have great advantages over the lighter oils for cemetery use, since they harden sufficiently within a few days, so that they no longer track off under either foot or vehicle traffic. The odor also disappears, leaving a clean, pleasing road in all kinds of weather.

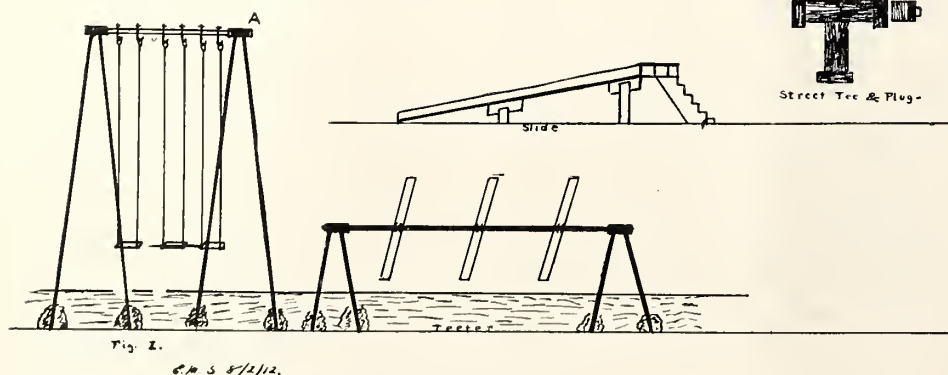
Experience has also shown that these surface treatments prevent the growth of weeds, saving much in the subsequent care of the road. Equally good results have been obtained in the surface treatment of footpaths. The cost of the treatment has been largely met by a reduced upkeep cost.

SIMPLE FORMS OF PLAYGROUND APPARATUS

By Edward M. Swiggett, Superintendent of Parks, Utica, N. Y.

There are many cities of five, ten, twenty-five and even sixty-five thousand population where the playground idea is just beginning to take hold and where no regular appropriation has yet been made for playground equipment and maintenance, furnished with all the up-to-date apparatus found in cities where there is a well established playground department.

A representative of such a city asked me if it was not possible to equip a simple playground at a moderate cost where the children could have a good time and which would get the public generally interested in having a regular city playground department. My reply was yes, and I propose here to give some ideas as to how this may be done.



HOME-MADE FORMS OF PLAYGROUND APPARATUS.

In this city and others sites have been loaned from year to year by persons who had vacant lots either for sale or for which they had no other immediate use. An initial ground may often be secured in this way, although, when possible, it is always best to purchase a site near the center of population.

If the lot is low it can be filled with ashes and other refuse, not garbage, to within six inches of the desired level, and often the local ash collector is glad to have such a place to dump, because it may save him a long haul. The top covering of soil can sometimes be obtained from contractors doing excavation work on cellars or for the hauling from persons who are having cellars dug. Sometimes a street is being paved and considerable excavated dirt may be obtained from the contractor who is doing the paving.

A simple shelter building consisting of a frame and roof, and 30 by 15 feet in size, may be built, hemlock construction



SIMPLE TYPE OF BOX SWING.

and very neat in appearance, for about \$100. A frame with a canvas top is also very satisfactory.

Children of all ages enjoy old fashioned swings, teeter boards, hammocks, box-swings, etc., and if these are found in generous numbers on a playground it is always well patronized.

Very substantial swings may be constructed by using two-inch iron pipe for the frames in the way that is about to be described. Five 16-foot lengths of two-inch pipe, four street tees and two plugs are needed for each swing. A street tee is a T-shaped piece of pipe used to couple

a pipe to another at right angles. Two lengths of pipe, threaded at one end, are coupled by means of street tees to each end of another length of pipe, threaded at each end, in such a manner as to resemble the figure V, and the points of the V are then set four feet in the ground in concrete. The two plugs are screwed into the ends of the pipe used as the top of the frame, and tend, by expanding these ends a little, to hold the street tees in place. The swing ropes are then tied around the top of the frame, or, what is much better, looped to two hooks which have been bolted through the cross pipe which forms the top of the frame.

A low frame about two and a half feet above the ground, but prepared in exactly the same manner as the frame for the swings, may be used for teeter boards, which may be fastened to the cross bar by U-shaped bolts bolted around the cross bar and through the boards. Any good dressed planks ten feet long, two inches thick and ten inches wide may be used for teeter boards.

A box swing is a large box suspended between or from four uprights, and of any dimension desired. A good size for box swings is six feet by four feet by two feet in depth. These may be made of dressed hemlock lumber and should be provided with two pieces of scantling, two inches by four inches, with inch and a half notches in either end, nailed across the bottom of the swing box near the ends and projecting out at least three inches beyond its sides to prevent the children from pinching their fingers between the sides of the box and the ropes or chains by which it is suspended. These ropes or chains are attached to cross pieces fitted

into the tops of eight-inch cedar posts set three feet in the ground and projecting seven feet above it. Box swings of this description are perfectly safe, provided the cross pieces and ropes or chains by which they swing are strong and well secured in place. The little children pile into a box swing and enjoy it more than anything on the grounds.

A very good "children's slide" may be constructed by the use of two-inch plank nailed together so as to form a trough two feet in width, six inches in depth and of any desired length. This trough may be given any desired pitch and should be nailed with thirty-penny nails to two supports, one at and under the head and one half way between the head and the foot. The inside of the trough should be planed and then thoroughly sand-papered. If desirable, a sheet of galvanized iron may be used to cover the bottom of the trough and its edges secured firmly under the sides. The ends of this metal strip may be turned under the ends of the bottom boards and nailed firmly.

Parallel bars, horizontal bars, etc., may all be made from two-inch iron pipe, street tees and elbows. Sand boxes are too simple of construction to require a detailed description here, but, generally speaking, two-inch planks and two-inch pipes are the materials from which sufficient playground apparatus may be made to keep hundreds of children happy all summer long.

Drinking water may be readily provided by connecting half-inch pipe with the nearest water main and coupling onto the end of it a simple faucet with a detachable key.

EFFICIENT TYPE OF PARK MERRY-GO-ROUND

Anyone who has ever been to a picnic ground or vacant lot equipped with a merry-go-round knows the immense popularity of this amusement device with the little ones. The public merry-go-round, however, with its expensive machinery and maintenance cost, and its not always favorable associations, make it rather impractical for parks, playgrounds and public institutions, so that it became necessary to devise a simpler, less expensive and more easily operated type of merry-go-round. One of the most practical and efficient types of park merry-go-rounds is the "Health" Merry-Go-Round, illustrated here, that has been widely used in parks and playgrounds. This machine is simple, strong and harmless, and requires no attendant or operating power, and no upkeep expense except for oiling, and a little general attention. The child is the motive power, and derives even more enjoyment from the fact that he is operating the machine himself.

The children work it in much the same manner as they operate one of the little handle and pedal-motion toy automobiles.

The movement of the child has been described as "combining all the valuable motions of boat rowing, running, walking,



HEALTH MERRY-GO-ROUND IN ROLAND PARK, BALTIMORE.

horseback riding and hill climbing, without the fatigue accompanying any of them."

This machine has been especially devised for parks, playgrounds and public institutions, and every effort has been made to have it "boy-proof" in construction and as completely self-operating as possible.

Although the Health Merry-Go-Round has been on the market less than four years—the first patents having been granted in the United States and Canada, May 1, 1906—it is already in use in nearly every part of this country, in Canada, Mexico, South America and Europe.

It is built throughout of seasoned hard wood and iron and so made that the children are each five feet from center post or ten feet from the opposite child. It can also be taken apart and stored for the

winter if desired, although it is so strong it will stand the winter weather in the yard. The seats are of hard wood, with a comfortable back.

The track upon which the wheels run is of hard wood and is put together with all the care used upon the felloes of a wagon wheel. The felloes are cut out by accurate machinery, and joints are made so close that the track presents a smooth surface for wheels to run upon. The four wheels which support the poles, and which run upon the circular track, are of iron. The handles and foot rests are of special pipe or steel bent to shape.

The handles are attached to the wheels by an oak connecting rod. Thus the pull upon the handle and foot rest is communicated without the use of cog wheels or

any other dangerous arrangement directly upon the wheels. This insures light running and the speed will be found fast enough to please the liveliest youngsters. The speed is at all times under control, and even when carrying full capacity can be stopped in a moment.

There are also heavy oak braces connecting the poles and giving additional strength. The axle of the merry-go-round is of extra heavy tubing.

The machine is furnished with or without a self-operating organ and a canopy or awning as desired. It is made in four, six and twelve-seated sizes, and varies in price from \$30 to \$125. The machine is manufactured by The Health Merry-Go-Round Co., Quincy, Ill.

ASPHALTIC-CONCRETE ROAD BUILDING

The boulevards and park roads of the West Park system of Chicago have been placed in such excellent condition the past few years that comparatively little improvement work, excepting that done by the board's own asphaltic concrete paving plant, has been necessary the past year. A vast amount of work has been accomplished with this paving plant, and the detailed figures of the work done, given in the last annual report of the board, will be studied with much interest by park and cemetery road builders everywhere.

In 1910 a complete equipment was purchased for laying asphaltic concrete pavements with the employment of the park's own force. Since that time all of the asphaltic concrete pavement has been laid in this manner. Approximately 235,000 square yards of pavements have been thus laid. The average cost has been 63 cents per square yard. When less pavement is laid, there is a slight increase in this price, as for 1912, the cost being 64 cents per square yard. The pavements laid in 1911 were laid for about 6 cents less per square yard

than those of 1910, the first year of operation. During 1912 alone, 121,835 square yards were laid, at a total cost of \$77,789.26.

This method of laying asphaltic concrete pavements is the result of broad experience in paving work, and has been introduced by the Park Board as representing the best and most economical disposition of the paving problem where it assumes the proportion that it does in this city. The board in its report says: "It cuts the expense about 50 per cent; the work is



ASPHALTIC CONCRETE PAVING PLANT IN OPERATION.



ASPHALTIC CONCRETE ROADWAY IN GARFIELD PARK, CHICAGO.

more thorough and durable, and it saves the necessity and inconvenience of hiring outside contractors to do our work."

A. C. Schrader, superintendent and engineer of the West Park System, gives some interesting figures of the operation of this plant. During the paving season of the year 1912 the total number of square yards laid aggregated 121,385, at a total cost of \$77,789.26, making the average cost per square yard 64 cents. The pavements were laid with an average thickness of two inches. The following is a list of roadways and drives paved during the current year:

	SQ. YDS.
West Drive of Independence Blvd., from Colorado Ave. to Harrison St.	1,095

GARFIELD PARK.

West Drive, south of Madison St.	14,767
West, North and Center Drives, between Madison and Lake Sts.	23,350
North of Lake St.	5,021

Total for Garfield Park..... 43,138

Palmer Square Drives.....	21,540
Washington Blvd., 52nd Ave. to Austin Ave.	24,472
Douglas Blvd., Douglas Park to Independence Square	20,048
East Drive of Independence Blvd., Fillmore St. to Independence Square	7,306

Total area of drives paved during 1912	117,599
Garfield Park walks.....	2,464
Independence and Douglas Blvd. walks	882

Total area of walks paved during 1912	3,346
Douglas Blvd. maintenance.....	440
Total yardage	121,385
Total cost	\$77,789.26
Average cost per square yard....	64c

COST OF MATERIALS.

Crushed limestone, per cubic yard...\$	1.19
Torpedo sand, per cubic yard.....	1.55
Bank sand, per cubic yard.....	1.05
Crushed granite, per cubic yard.....	2.95
Asphaltic cement, per net ton.....	17.95

Coal, average price per ton.....	4.65
Beach sand, per cubic yard.....	1.15

The following is a summary of the cost of asphaltic concreté pavements for the years 1910, 1911 and 1912:

YEAR.	SQ. YDS.	COST.	COST PER SQ. YD.
1910.....	93,742	\$63,373.99	67.59c
1911.....	137,449	84,236.02	61.24c
1912.....	121,385	77,789.26	64.09c
Total yardage paved.....	352,686 sq. yds.		
Total cost		\$225,399.27	
Average cost per square yard.....			63.91c

302,700 square yards of macadam pavement were treated from one to three times during the year. The following table shows the cost for the year 1912:

Oil with asphaltic base, 7,150 gallons at 6c.....	\$ 429.00
Crude petroleum oil, 39,480 gallons at average of .0346c.....	1,360.00
Teams, 130 days at \$5.50 per day..	715.00
Soap, 110 barrels at \$2.50.....	275.00
Labor, superintendence and miscellaneous charges	1,056.28

Total	\$3,835.88
Total square yards covered during 1912	302,700
Cost per square yard for year..	1.27c

PREVENTING EROSION ON ROADWAY GRADES

Erosion has long been a troublesome factor in the maintenance of roadways built of macadam, gravel and slag. This has

The gutters completed, and the diverters in position, the spaces are filled with the material selected for the roadway and the

is a proportion of 1-2-4. The fresh concrete is covered with earth as soon as the forms are removed and kept moistened for



FIG. 1. FRAMEWORK OF ROADWAY DURING COMPLETION.



FIG. 2. THE COMPLETED SKELETON; STONE BEING DUMPED IN.



FIG. 3. THE COMPLETED ROADWAY AFTER ONE YEAR'S SERVICE.

been met, in part, by the use of gutters of various design and material and has been effective according to the steepness of the grade, the material used in road building and the length of the incline. Paving and concrete are sure preventatives of erosion, but carry first an almost prohibitive expense in building and, due to their smooth surfaces, are unsuited to the steeper grades during certain seasons of the year.

The following is the method employed at Grand Lawn in road building on grades. The first cost is exceptionally low, the maintenance small, the appearance of the roadway is unaltered and is effective in preventing erosion.

Fig. 1 shows the framework of the roadway during completion. It is merely an application of the old-fashioned "Thank-you-mam" with the bump left out. The concrete gutters are built first, and after any method approved by the builder. The "diverters," also of concrete, are built to fit them. The distance between the insides of the gutters in the illustration is 13 feet, the road being 18 feet wide and the gutters 30 inches. The crown of the roadway is 6 inches. As the road and grass sides of the gutter are at the same level, the entire crown of the road is thus given between the inside edges of the gutters, the crown thus given being a little less than one inch to the foot. The grade on this roadway is 12 per cent.

The diverters have a slope of 30 degrees with the transverse axis of the road and their upper surface of the forms in which they are built must be ascribed to fit the curve of the road in this position. These curves can be readily computed by well-known methods. The diverters should be nine inches wide and not less than one foot in depth. The upper surface is not level, but conforms exactly to the incline of the grade. The diverters are spaced 15 feet apart.

road roller may be used to compact it. The spaces must be well filled with material or the shock of the roller striking the unprotected concrete will damage the work. The only weak spot in the method that the writer is aware of lies in the fact that the roadway can be rolled in only one course.

Fig. 2 shows the completed skeleton and the crushed stone being dumped in place.

The concrete mixture used in this work

about two weeks. This thoroughly cures the concrete and enables it to withstand the hard wear to which it is subjected.

Fig. 3 shows the completed roadway after one year's service and with no maintenance whatever since its completion. This roadway on a 12 per cent grade withstood a rain of 1.24 inches which fell in a little less than one hour.

E. B. WILHELM.

Detroit, Mich.

BUILDING SCENIC PARKWAYS

The construction of Hillside and Terwilliger parkways, two of the fine scenic drives in the park system of Portland, Ore., involved some unusual problems in park roadway building that make a study of the details of these improvements worthy of especial note.



SECTION OF TERWILLIGER PARKWAY, SHOWING CURVATURE AND COMPLETED GRADING.

These two parkways are normally 200 feet in width, with a maximum grade of 5 per cent, mostly 2 and $2\frac{1}{2}$ per cent; the shortest outside radius, 117 feet; inside radius, 72 feet. The typical section from property line to property line is as follows: Beginning at the upper side, property line to gutter, $17\frac{1}{2}$ feet; gutters, 2, each 3 feet; gutters and roadway, 36 feet; from edge of lower gutter to edge of walk, 9 feet. The paving is to be hard surface, "Tarvia."

The lighting is to be underground electric, with lights spaced 150 feet apart, and single solid concrete reinforced lamp posts, surmounted by 400 watt lamps enclosed in 20-inch globes.

The plantations are all native. That is, where there is no existing vegetation it has been supplemented on cuts and fills by material indigenous to the locality.

The drive is to commence in the heart of the city, and when this present section is completed it will reach the river, a distance of approximately seven miles. The highest point reached is 500 feet, city datum. The views give a fine panorama of the city and Willamette Valley and the Cascade range, with the prominent snow-clad mountains, namely, Three Sisters, Jef-



WHEELED SCRAPERS GRADING A SECTION OF HILLSIDE PARKWAY.

fer, Hood, St. Helena, Adams and Rainier. Altogether, it is one of the strongest scenic prospects in any park system in the country. An extension northerly from the city, a distance of eight miles, will traverse similar steep hillsides and give view of the lower harbor and manufacturing district and both the Willamette and Columbia rivers.



VIEW FROM EAGLE POINT ON HILLSIDE PARKWAY, PORTLAND; MT. ADAMS IN THE DISTANCE.

ASKED AND ANSWERED

An exchange of experience on practical matters by our readers. You are invited to contribute questions and answers to this department

Automobiles in Cemeteries.

Editor Asked and Answered Dept.: The members of the Board of Directors of our cemetery, in whose behalf I write you as their president, have beautiful and extensive grounds lying on the upland overlooking our town, and have heretofore adopted the policy of excluding access to the grounds of all automobiles, so as to avoid all joy-riding, likely to result in run-aways and injuries to the grounds and improvements, but lately a pressure has been upon us to open the grounds to automobiles. We fear to do so. Our members receive regularly your valuable PARK AND CEMETERY, but have not observed in it anything relating to the subject, with the rules and regulations or action of other cemetery companies relating to the matter. If you have made any publication upon the subject, or know of any such action by other cemeteries, it would be a favor to us for you to call our attention to them.—B. C., Pa.

PARK AND CEMETERY of October, 1911, had a discussion on the question of excluding automobiles, which was raised by another inquiry. The general opinion among cemetery people connected with large cemeteries of the city is that automobiles must be admitted. They are subject, of course, to the same traffic regulations and police control as other vehicles and the larger cemeteries do not find them troublesome. In some cases, in smaller grounds or in hilly grounds, with small roads, where there is not room for them to get around the road without danger to pedestrians, it has been found necessary to exclude them. We believe you will find some help in reading the matter we are referring to you in another issue.

The following rules governing the admission of automobiles to Spring Grove Cemetery, Cincinnati, may also be suggestive to you of the restrictions necessary in handling automobile traffic in the cemetery:

An automobile belonging to the owner of a lot or grave in the cemetery and carrying the owner or some member of his family, may be admitted to the cemetery, subject to the observance of the following rules:

1. Speed must not exceed ten miles an hour.
2. The machine must be so driven that no audible signal will be necessary.
3. The machine must not pass a funeral cortege proceeding in the same direction, or at a point where a burial is in progress.
4. When attending a funeral automobiles must be kept in the rear of vehicles drawn by horses.
5. The driver of an automobile must carefully heed and obey all warnings and signals.
6. Should horses become frightened by an automobile the driver of the machine must stop and render any necessary assistance.
7. Machines must always keep to the right of the road.
8. On entering or leaving the cemetery the holder of an automobile ticket must show it to the

gatekeeper when asked, and the ticket must be shown to the officer on the grounds whenever desired.

9. Automobiles must always be so driven as not to give off smoke or to drop oil; nor shall mufflers be opened while within the cemetery.

10. When the machine stops the engine shall be stopped.

11. Automobiles shall not be turned on the avenues.

12. Automobiles will be admitted on Sundays between the hours of 8 A. M. and 2 P. M.; and on Decoration Day between 2 and 5 P. M.

13. Any violation of the rules shall entail the cancellation of this ticket.

14. This ticket is not transferable, and good only to January 1

Legal Status of Cemetery Border Planting.

I am sorry to confess that I have failed to file and preserve PARK AND CEMETERY for the last twenty years, and I am in need of some information contained in numbers of some three to five years ago—some court decisions in reference to cemeteries maintaining shrubs and trees planted along dividing lines of other property or public streets or alleys, where contrary private property owners or other disinterested citizens brought suit against a cemetery company, demanding the removal of certain trees, shrubs or hedges on the line of the cemetery grounds, planted for the purpose of screens, and improving the landscape inside the grounds. The court held for the cemetery company and in the decision said some forceful things about people who wished to deface the last resting place of the dead. Our cemetery company is up against just such a proposition and our town board has ordered us to remove a hedge planted four feet inside our line. The decision, as I remember reading it at the time in PARK AND CEMETERY, covered just such a case, and I am desirous of procuring the number containing it. Will pay all charges and be under lasting obligations if you will send me the number. I do not remember, but think it has been within the last five years.—W. S. M., Mich.

[Editor's Note.—We are unable to locate in our files the decision referred to above. If any of our readers can refer us to it they would greatly favor PARK AND CEMETERY and the inquirer.]

Cultivating Sod.

I am desirous of setting apart a certain portion of our cemetery grounds for the purpose of cultivating sod, to be taken up at various times for sodding graves, etc., etc., and I have an indistinct recollection of reading some years ago in PARK AND CEMETERY the method by which good sod could be obtained from the soil by proper treatment. In our country we have so far been able to cut the sod from the woodlands hereabouts, but it is now becoming

scarce, besides requiring long haulage. If you can put me in the way of getting the information I require I shall greatly appreciate your kindness.—I. J., Pa.

If possible, select a piece of ground free from stone, reasonably level and having a deep soil. Cultivate thoroughly by plowing deeply and harrowing until the ground is well pulverized. It would be well to use a sub-soil plow. The surface might be evened off with a board drag. On the surface thus prepared, sow equal parts of Kentucky blue grass and red top, selecting good seed and using a total of 65 pounds to the acre. The seed should be sown on a quiet day, raked in lightly and rolled. Seeding in this latitude should be done in April or between the first and fifteenth of September. For the purpose named, nothing will be gained by seeding in July or August. It would be better to spend this time in summer following the land so as to have it in good condition and free from weeds at seeding time. The grass can be cut with a lawn mower as soon as it is three or four inches high. There should be a sod fit for cutting a year after seeding. Sod should be cut thin, and the bared surface left after the removal of the sod can be raked and seeded again. The roots remaining in the ground will also sprout and augment the growth of new sod, which can be removed at the end of another year. In this way, with a good depth of soil, a series of sods can be removed during a series of years. It would be well to add fertilizer at each reseeding, using well-rotted manure, bone meal, wood ashes or lime. Experiments might be made with different fertilizers to ascertain which has the best effect on the soil used,

O. C. SIMONDS.

Chicago.

We have had some experience in cultivating sod, and regret to say owing to our recent dry seasons it has not been very satisfactory. Our plan for sod gardens is as follows: In the spring we plow the ground, keep it harrowed and cultivated during the spring and early summer to kill the weeds and witch grass. Early in August we go over it very carefully, shaking out all weeds and witch grass roots, give a heavy dressing of stable manure and seed with our regular lawn grass seed mixture. The mixture is composed largely of Kentucky blue grass, red top and Rhode Island bent, and is made up of the best clean seed we can buy. The proper cultivation of a sod garden requires a great deal of time and attention, and as we make it a point to use seed instead of sod wherever possible, we get along with comparatively little sod. We cannot, however, get along without more or less sod, and a sod garden is an important feature in any cemetery.

HENRY S. ADAMS,
Supt. Forest Hills.

Jamaica Plain, Mass.

OFFICIAL COMMUNICATIONS

JAMES B. SHEA, Boston, Mass., President



AND CONTRIBUTIONS

J. J. LEVISON, Brooklyn, N.Y., Sec.-Treas.

The Denver Convention.

The American Association of Park Superintendents is making an active campaign for more members and a good attendance at the annual convention in Denver, August 25, 26 and 27.

Arrangements for the program are nearly completed and the meeting at Denver promises to be one of the most interesting and valuable in the history of the organization. The meeting is to lay especial emphasis on practical outdoor demonstrative work. It will be almost entirely devoted to real work outdoors, and every park man in the country, whether a member of the organization or not, is urged to be present.

MONDAY, AUGUST 25.

A. M.—Business meeting. Address of welcome by J. S. Macbeth, president of Park Board, and other city officials.

Noon—Lunch at City Park.

Afternoon, 1:30 P. M.—Outdoor meeting of association on lawn at City Park. Papers and discussions.

3:30 P. M.—Auto ride of portion of parks and parkways.

6:30 P. M.—Dinner, Montclair Civic building.

8 to 10 P. M.—Attend band concert, moving pictures, and electric fountain, City Park.

TUESDAY, AUGUST 26.

A. M.—Papers and discussion at headquarters. Lunch at headquarters.

1:30 P. M.—Auto ride to Washington Park, to attend outdoor meeting on lawn.

3:30 P. M.—Auto ride over city, inspecting parks and playgrounds.

7:30 P. M.—Auto ride to Elitch's Gardens, to attend performance of stock company.

WEDNESDAY, AUGUST 27.

8:30 A. M.—Take auto ride to Mountain parks.

Noon—Lunch on Genesee Mountain.

1:30 P. M.—Short papers and discussion.

2:30 P. M.—Trip back to Denver, via Bear Creek or Turkey Creek.

Note.—A question box will be placed at headquarters, where members of the association may ask questions that they would like to have discussed by the association.

Entertainment will be provided by the ladies during business meetings.

Following is a list of the speakers and the subjects to be treated in the addresses and discussions:

Paper on "Playground and Recreation Facilities and Their Management," by Edw. De Groot, general secretary, Playground Association of Chicago.

Lecture on "The New York Idea of a Zoological Park," by Herman W. Merkel, forester, New York Zoological Park. Illustrated with lantern slides.

Lecture on "The Care and Planting of Ornamental and Shade Trees," by J. J. Levison, M. F., forester, Brooklyn Park Department. Illustrated with lantern slides.

Informal discussions on "Municipal Nurseries," led by Messrs. Boddy and Alber, and on "Boulevard and Road Surfaces Suitable for Both Pleasure and Traffic," by Ralph R. Benedict.

"Field Demonstration of the Flora in the Vicinity of Denver," by Mr. John Berry.

Following is a copy of a communication announcing the Denver meeting that is being mailed to a large number of park commissioners throughout the country:

"The next meeting of the American Association of Park Superintendents, to be held in Denver, Colo., August 25, 26 and 27, 1913, promises to be even more fruitful than any of those held heretofore. It will deal with live problems, the very ones confronting you today. They will not be theorized upon; they will be discussed by park men from all over the United States and Canada, men who confronted these problems under various conditions and under numerous difficulties. There will be demonstrations in park development and park problems exemplified in one of the most progressive park systems in this country. Read the enclosed circular and be convinced on this point.

If you are progressive you should have your superintendent and associates there and, if possible, be there yourselves. Your superintendent will, of course, contribute his share, but he will return with information far more than the cost of the trip. It may save you thousands of dollars and dozens of years. You will not be able to read it up afterwards because it will be all discussion and demonstration in the field—things to be seen and be impressed with and not to be described. If you have a problem, bring that along, too, and profit by the experience of others.

Can you afford to miss this? You decidedly cannot, and we therefore urge you to consider this at once and see that you are represented at our next meeting.

If you decide to send your representative or be with us yourself, please notify

the secretary, so that he may post you on further particulars at a later date.

Very truly yours,

JAS. B. SHEA,
President."

THE PLAYGROUND MOVEMENT IN UTICA.

By E. M. Swiggett, Supt. of Parks, Utica, N. Y.

The playground movement in Utica (population of 77,000) has grown gradually and has been the outgrowth of years of interest taken by a few private parties who formed themselves into a citizens' organization bearing the name Utica Playground Committee—now Playground and Recreation Association.

This organization has for a number of years raised funds to promote playgrounds by subscription and otherwise and carried on playground work long before the purchase of the first municipally owned and operated ground in 1903.

In 1907, when an act was passed creating the park board, public playgrounds came under the control of the Utica Park Board, which has since directed the management of them.

But the local association has maintained their interest in the playgrounds and continued to raise funds for the addition of equipment, employment of special teachers of "folk dancing," etc., and are now taking up the "social center" idea.

Initial steps in the promotion of social center work were taken two years ago by a member of the City Library staff, who organized children's clubs at one of the branch libraries with a high degree of success.

The superintendent of parks, superintendent of schools, public librarian, one of the local editors and others have taken great interest in the civic improvement and children's garden movements. One highly successful children's garden has been carried on for two years, and it is probable that the institution of school gardens will follow soon. While this is a separate movement from the playgrounds, it has such an important bearing on the general idea of training useful citizens that, as an auxiliary of the playground movement here it cannot properly be omitted.

The Utica playgrounds have been opened for the school vacation period of eight to ten weeks only and the following staff of instructors has been employed by the park board each season: Three regular instructors, one man and two ladies, for each of three playgrounds, now in operation, besides teachers of sewing and "folk" dancing.

ing. In 1912 a general supervisor or chief instructor was employed.

The playground activities have included organized baseball, volley ball, basket ball, and other teams besides track athletics, meets, etc. At the close of the playground season each year a field day has been held, with contests between picked teams from each ground, exhibits of work done by the children, etc., and in 1912 there was a small pageant.

The Utica Chamber of Commerce has

had talks given by prominent lecturers on playgrounds and kindred subjects, the park board has given illustrated lectures on playgrounds, and the Playground Association has given entertainments, so that the playground movement might in this way grow in popularity and interest.

In conclusion, it is well to say that playgrounds for unorganized play have not been neglected, for the park board has established several in the large parks. These are always well patronized and will be

added to from time to time. They include winter as well as summer sports.

Utica's first social center was started in an unused second floor of a school house in January, 1913, in West Utica. Already (February 26, 1913) there is a demand for one in the "East End." The idea of using more school buildings for social center work is making progress. The boys' clubs are studying parliamentary law and meeting regularly on separate days from the days the girls meet.

CONVENTION OF AT BUFFALO



The arrangements for the program of the annual meeting of the Association of American Cemetery Superintendents, to be held at Buffalo, September 17, 18 and 19, are making good progress, and the convention promises to be one of the most interesting in the history of the organization.

While the details of the papers, addresses and discussions have not yet been finally settled, there are a number of interesting features under consideration and others in prospect. Among the most valuable of the formal addresses will be a paper by Superintendent A. W. Hobert, of "Lakewood," Minneapolis, on "Cemetery Accounting," and a discussion of some topic pertaining to planting or horticulture, by Prof. J. F. Cowell, of the Botanical Garden at Buffalo. Those who know Prof. Cowell and Mr. Hobert will appreciate that these two features alone will be worth attendance at the convention.

The program as at present laid out is outlined about as follows:

FIRST DAY—MORNING SESSION.

Mayor's address of welcome.

President's address.

Reception of new members and roll-call.

Report of secretary and treasurer.

Appointment of committees.

AFTERNOON SESSION.

Papers and discussions.

SECOND DAY.

Automobile trip, starting at 9:30 a. m. Run out Delaware avenue to Elmlawn Cemetery; return to Forest Lawn Cemetery, where a session will be held and light luncheon served. Proceed to Pine Hill Cemeteries and Public Mausoleum; thence to South Park and Conservatory there, and return to headquarters.

THIRD DAY.

Trip to Niagara Falls, starting from Buffalo by boat to Schlosser's Dock; thence by trolley to Falls and around by way of Gorge Route, stopping at Victoria Park for luncheon, with stops at other points of interest.

Bellett Lawson, Jr., of "Elmwood," Chicago, is secretary and treasurer.

The convention committee is composed as follows:

F. W. Werick, "Ridge Lawn," Buffalo.

Jno. W. Keller, "Mt. Hope," Rochester.

F. Sherard, "Riverside," Rochester.

Headquarters will be at the Hotel Statler, where the following rates are in force:

One room with tub and shower bath, for one person, \$2.50 to \$4.50 per day.

One room with tub and shower bath, for two persons, \$4 to \$6 per day.

One room with tub and shower bath, for two persons, twin beds, \$5 to \$7 per day.

One room with shower bath, for one person, \$2 per day.

One room with shower bath, for two persons, \$3 per day.

One room with shower bath, for two persons, twin beds, \$4 per day.

Two connecting rooms with two baths, for two persons, \$5 to \$10 per day.

Two connecting rooms with two baths, for four persons, \$8 to \$12 per day.

For additional persons occupying these rooms special rates will be made.

Suites of parlor and bedroom with two baths for one or two persons, \$8, \$10, \$12 and \$15 per day.

If desired, a private dining room and additional bedrooms connecting with these suites may be rented.

Rooms for headquarters and for exhibit purposes, prices upon application.

When asking for reservations, please state the number of persons for whom accommodations are desired and also the kind of rooms preferred, giving at the same time the date and, as near as possible, the hour of arrival.

The Hotel Statler is located at Washington and Swan streets, right in the heart of Buffalo, and is easily accessible to all railroad stations, steamer landings, stores and theaters; convenient for all routes to Niagara Falls.

NATIONAL CREMATION ASSOCIATION.

The Michigan Cremation Association has issued a call for a national convention of cremationists to be held in Detroit, at the Detroit Crematorium, August 27th and 28th. As it is the first meeting of the kind, no definite program has been formulated, but it is proposed to establish a national organization and discuss various questions of practical import relating to the best methods of advertising, management of crematoria, etc. An exhibition of urns, photographs of crematories, and other objects of interest to cremationists will be held at the same time. There are forty-two crematories in the United States and about a dozen cremation societies proper. To all of these invitations to attend have been sent.

Dr. Hugo Erichsen, 240 Chandler avenue, Detroit, secretary of the Michigan Cremation Association, is in charge of the meeting and can give further information to those interested.

NEW ENGLAND CEMETERY ASSOCIATION.

The summer outing of the New England Cemetery Association, held June 19th at Mt. Auburn Cemetery, Cambridge, Mass., was one of the largest outings the association ever had, some eighty members and friends gathering at Mt. Auburn Cemetery at 10 o'clock. A general inspection of the cemetery was made in automobiles and all agreed that Superintendent J. C. Scorgie, of Mt. Auburn, deserves great credit for the care taken of the cemetery. After the inspection, a short meeting was held in the chapel and five new members were unanimously elected. After the meeting the party adjourned to Superintendent Scorgie's house, where a collation was served under the spreading trees. At 2 p. m. all were conducted in automobiles to the Breck-Robinson Nurseries, where a short stay was made and another collation served. The party was

then conducted to Concord, Mass., where historic Sleepy Hollow Cemetery was visited. After this visit the gathering adjourned to Colonial Inn, Concord, where an enjoyable banquet was held.

Rev. Mr. Walker, of the Concord Reformatory, and Mr. Gilmore and Mr. Keyes, street commissioner, were the guests, and made interesting talks.

OHIO CEMETERY CONVENTION.

The annual meeting of the Ohio Association of Cemetery Superintendents and Officials was held in East Liverpool and Steubenville June 25th and 26th. About fifty delegates were present, representing nearly all parts of the state.

Many very interesting questions pertaining to cemetery work and management were discussed and the enthusiasm was at a high pitch. All present agreed to do some personal work before the next meeting and increase the membership. The following officers were elected:

R. E. Gifford, president, Ravenna, O.

J. A. Reed, vice-president, Canton, O.

E. A. Sloan, secretary and treasurer, Marion, O.

The retiring secretary and treasurer, Mr. G. C. Anderson, of Sydney, O., who had so faithfully served as secretary and

treasurer for twelve years, declined to serve again on account of failing health. Mr. Anderson is nearing his eightieth birthday.

Through Mr. J. C. Cline, of Dayton, on behalf of the association, Mr. Anderson was presented with a solid gold watch fob with his name engraved on it and the letters O. C. S. and O., 1913.

Ravenna, O., was chosen as the meeting place in 1914, time to be set by the executive committee.

The first session was held at the Carnegie library, in East Liverpool, when several important addresses were made. This was followed in the afternoon by an inspection of the Riverview Cemetery and a meeting held in the G. A. R. chapel. Later in the afternoon the visitors were taken in an automobile sightseeing trip over the city.

At 8 o'clock the cemetery superintendents and officials were given an elaborate banquet at the Kenilworth Country Club. A pleasing musical programme was rendered.

The visitors left on the 9:50 car over the Tri-State Railway and Electric Company's line the next day for Steubenville, where the closing sessions of the convention were held.

Pittsburgh, Pa., is a very serious question, and the Pittsburgh Press is vigorously urging the City Council to show some interest and energy in order that the parks may fulfill their usefulness.

Mr. John Nolen, landscape architect, Boston, Mass., has recently been in Little Rock, Ark., for the "City Beautiful Club" in preparation for the plans for making extensive improvements of the parks and boulevards of that city. He will also study the improvements of the property adjoining the 25-acre park on which the \$5,000,000 new state capitol is erected.

Some question on the inappropriateness of the name Mildred Park, given to one of the later parks of Springfield, Ill., has finally resulted in the name being changed by the park board to Bunn Park, the name being selected in honor of John W. Bunn, secretary of the park board, for his great services in the park and city's interests.

Secretary of War Garrison has notified the South Park Commission of Chicago that the southern portion of Chicago's lake shore must not be converted to park purposes until definite assurance is given that provision will be made for outer harbor facilities in some section of the lake front. This should hasten some positive action on this important question. The War Department has indicated that the proposed outer harbor north of the river will afford an adequate safeguard for navigation facilities, but it must be definitely settled upon.

Mr. F. W. Fitzpatrick, of Washington, D. C., is in New Orleans consulting with the city authorities on the layout of the proposed Southern States and Pan-American Exposition grounds and buildings.

A definite movement for the establishment of a city park has been launched at Pine Bluff, Ark., and an organization formed which will invite offers of land from property owners. No bids will be considered where tracts are less than 80 acres or more than 120 in area.

Local patriotic societies in the neighborhood of Philadelphia have been urging the state legislature to make an appropriation for the purchase of land on the Pennsylvania side of the Delaware for the purpose of establishing there a joint park with the state of New Jersey. It is pronounced to be quite a desirable location for such a park apart from the historical associations.

Baltimore, Md., parks had their inception practically a century ago. It was in the historic year of 1815 that two spaces of ground of a little over two acres were donated to the community by public-spirited citizens. These tracts became the now famous Mt. Vernon and Washington Place Squares. Three years later the city appropriated the then large sum of \$15,000, with which to purchase an additional acre, on which was laid out the Eastern City Spring Square. Nine years later, in 1827, came the purchase of one hundred and

PARK NEWS.

The city of Toronto, Canada, has been offered twelve acres of fine park land, all laid out by the Cemetery Trust at Prospect Cemetery. The land is valued at approximately \$10,000 an acre. In return for this land the trust desires the city to divert the proposed parallel road from North Toronto to the heart of the city, so that it will skirt the eastern boundary of Mount Pleasant Cemetery instead of going through it.

The Park Commissioners of Minneapolis, Minn., recently decided to turn "wreckers," and tear down the buildings on the site of the new Gateway Park themselves. The low price, \$3,100, offered by the best wrecking company bid, suggested that there was considerable profit in the job, which the commission might just as well secure.

The fortunate and public-spirited residents of Rittenhouse Square, Philadelphia, and its vicinity, who have subscribed \$40,000 for its improvement, are setting a splendid example to citizens in all parts of Philadelphia as well as for the country at large. It will redound not only to their own gratification, but to the 1,600,000 other people of the city, who have equal rights in the pretty park.

For the second time in the administration of Park Commissioner Stover, of New

York City, the Park Department has lost the services of a landscape architect with the recent resignation of Charles Downing Lay. Mr. Lay, it is reported, gave up because he did not have adequate help for the work he deemed necessary to protect the natural beauties and save the soil in the city's parks.

Citizens of South Nashville, Tenn., are bringing pressure to bear upon the authorities for a solution of the park question in that locality. The matter of reopening the proposition to create a public park out of the plague spot of Black Bottom was successfully debated, and the Park Commissioners will again take it up.

When Joseph Wharton, the wealthy ironmaster, of Philadelphia, died two years ago, it was found that his will gave some 25 acres of beautiful land to the city forever as a park. However, there was a proviso. He wanted the place to be accessible. So he demanded that the city open two streets leading up to and running through the property, so that all the people could get there easily. He stipulated that this must be done within three years after his death, and as the time is rapidly passing, the citizens of Branchtown and Fern Rock are moving energetically to push the matter in the Council.

Transportation service to the parks of

twenty-eight acres, at an expenditure of \$465,000, which is now Patterson Park. Today Baltimore has fifty parks, squares and triangles, with an area of twenty-three hundred acres, costing in purchase price nearly \$4,000,000. Agitation for more park area is rapidly developing.

Park Improvements.

Jackson Park, Chicago, now has a bathing beach large enough to accommodate four or five thousand bathers. The South Side Commissioners have also authorized the placing of shelters at the beaches under their control. The Small Park Commission is planning to establish a chain of beaches throughout the city.

The town council of Plainfield, N. J., has been asked by the Playground Commission to appropriate \$600 for the purpose of equipping a playground in the Washington School park.

The Park Board of Freeport, Ill., has provided a large number of benches for Taylor Park, and arrangements have been made for providing playgrounds apparatus for the same park.

Detailed plans of the N. P. Dodge Park boulevard along the river front, Council Bluffs, Ia., have been practically completed. The boulevard is to take the form of a levee for the protection of the park from the river and is being constructed high enough above the river to keep out all but an extraordinary flood.

A summer garden is in course of construction in Riverview Park, Alton, Ill.

Beautifying the surroundings of the new Great Northern depot will be one of the biggest improvements made in Bemidji, Minn., this summer.

Officials of the R. T. Crane Co., of Chicago, have been looking over the company's holdings on Buffalo Rock, La Salle county, Ill. It is the company's intention to park the place and to girdle the rock with a new road and to do considerable landscape work.

Work has already begun on the further improvement of the Palisades Interstate Park, extending from Fort Lee north along the Hudson river above and under the Palisades. It was hoped last year to complete the widening and leveling of the road for many years known as Undercliffe avenue, but difficulties intervened and only a preliminary survey was undertaken. This, together with the erection of a few comfort stations, constituted the entire improvement made during the year 1912. The Interstate Park is a favorite spot for campers during the summer.

Early last season the City Council of Milwaukee, Wis., turned over to the Park Board thirteen small parks that had been under the charge of the Board of Public Works. This was made too late for the usual spring care, but all possible attention was given to them and they were popular with the children. This year they will have all the work necessary for their

best development and will be a great boon to the coming citizens.

For the development of that portion of the Parkway, Philadelphia, Pa., bounded by Twenty-first, Twenty-second, Callowhill and Carlton streets, the Bureau of City Property has awarded the contract for the razing of the dwellings thereon to the Stier-March Company, which is to pay the city \$1,050 and keep the material of 200 houses to be demolished west of Logan Square. The work has started.

The Park Commissioners of Pittsburgh, Pa., have introduced the bird protection feature into their management and have already secured much interesting information concerning the species making use of the parks. Several hundred bird houses have been erected in Schenley and Highland Parks, and a special employee was designated for the care of the birds and for compiling statistics concerning them.

Mr. Frederick Law Olmsted, of Boston, has been in Niagara Falls for the purpose of advising on a park system.

Bids were received and opened recently by the Park Board of Springfield, O., on the field house to be erected at Snyder Park. J. A. Poss was the lowest bidder; his tender was \$3,768 for the complete work.

There being no place in the thickly settled residence part of Davenport, Ia., for the children, the Park Commissioners have been considering the use of the western end of the new East River Park for the purpose of a playground park.

New Parks.

The Iowa State Executive Council has approved in full and authorized the city of Waterloo to take possession of a part of the Cedar river for the purpose of creating a river park and boulevard in the heart of the city. The state has control of the river bed, but permission was readily granted for Waterloo to make the improvement.

The proposed South Shore Park, Milwaukee, Wis., which is to be constructed of filled-in land from Russell avenue south of the city limits and extend 1,000 feet out into the lake, is assured. Twenty quitclaim deeds from property owners along the south shore have been received by the common council for approval.

In connection with the proposed city park in Pine Bluff, Ark., Mr. J. J. Haverty, of Little Rock, formerly of Pine Bluff, has offered to donate to the city from 80 to 100 acres of land at Smart's Crossing under certain conditions.

A children's playground has been opened by the Board of Park Commissioners of St. Louis, Mo., by the aid of the Woman's Civic Federation, at Eighth street and Exchange avenue. A woman instructor is to be employed at the federation's expense for three months. This is only a start, and several more are promised in the near future.

The East St. Louis, Ill., Park Board has had a large force at work paving Forest boulevard and rushing the completion of Washington Park, which, when completed, will be the largest city park in East St. Louis. The park will be three-fourths of a mile long and 400 feet wide.

Galesburg, Ill., is to have a new recreation park in the addition to the City Park, north of Galesburg, of a park pavilion. Messrs. J. Grant Beadle and N. K. Aldrich, architects, have been instructed to draw up separate sets of plans for a modern park structure to cost in the neighborhood of \$8,000.

The City Council of Atlanta, Ga., is being urged to purchase the old Moseley estate, comprising 38 acres, in the Battle Hill section, for park purposes. The place is admirably adapted for a park.

Citizens of East Dallas, Texas, are making great efforts to induce the Park Board to investigate property well suited for a park for their district.

The officers of the Burlington railroad have decided to donate to the city of Fairfield, Ia., the Franklin school grounds for park purposes.

Action leading to the purchase of the land needed for the establishment of a county park at Caldwell, N. J., has been taken by the Essex County Park Commission. It was made possible through the clearing of a misunderstanding relative to the availability of the necessary funds, amounting to \$100,000.

The two adjacent municipalities of Gary, of steel fame, and Miller, towns a few miles south of Chicago, are jointly promising to create a lake front park and a connecting boulevard on the shore of Lake Michigan, just north of Miller.

Camden, N. J., is at work to secure further tracts of land for park purposes.

Fourteen acres has been added to the Zoo in Fairmount Park, Philadelphia. The land lies just outside the east fence of the Zoo grounds, and extends from the carriage sheds to the south gate of the gardens. The fence of the Zoo will be moved to the western curb of the west river drive. The land will be fenced in and used as a park for deer and elk.

* * *

Statement of the Ownership, Management, Etc., on April 1, 1913,

OF PARK AND CEMETERY AND LANDSCAPE GARDENING,

published at 440 South Dearborn street, Chicago, Illinois, as required by the Act of August 24, 1912:

Editor—John W. Weston.

Managing Editor—O. H. Sample.

Publisher and Owner—R. J. Haight.

R. J. HAIGHT.

Sworn to and subscribed before me this 27th day of June, 1912.

CHAS. H. ROBINSON,
Notary Public.



CEMETERY NOTES

The Missouri Cemetery Improvement Association has just issued a summary of its proceedings since and including its first meeting at Boonville, Mo., on April 8, 1909. The association has had some excellent meetings, not forgetting the one of recent date, in which some of the important problems in cemetery practice were quite well thrashed out, and real practical information formulated for immediate application. Membership in the association is open to all officials connected with cemeteries and the association's work should have the support of all the cemetery officials of the state.

St. Agnes Cemetery, Albany, N. Y., has completed plans for a handsome building to be used as a combined office and administration building and superintendent's residence. It will be a modern fire-proof building and will cost \$30,000.

Aroused by the lack of care taken of Eastside Cemetery, Hutchinson, Kas., and the need of improvements there, lot owners of the cemetery have formally organized. They discovered recently that they are really the same as stockholders in the cemetery association, and the new organization will take charge of the cemetery and conduct it hereafter.

The Board of Trade of Bristol, Tenn., is taking active steps to promote the welfare of the town. Among a number of important recommendations is that for a new cemetery to be established at a suitable and convenient location and on such a plan that it will forever be properly cared for.

Miss Ethel B. Gardiner, the recently appointed superintendent of Elm Grove Cemetery, Providence, R. I., defeated several male candidates for the position and is the only woman cemetery superintendent in New England. She has been a candidate for the appointment since the death of her father, the late Alonzo J. Gardiner, last winter, who had been superintendent of the ground for almost twelve years. For some time prior to his death she had been his assistant. With her knowledge and experience there is little doubt but that she will admirably fill the bill.

Work is in progress on a new Catholic cemetery at Haywards, Alameda county, Cal. The tract affords a beautiful site. It comprises 156 acres of rolling land with a range of hills for a background, and overlooking the bay. The plans for the grounds and necessary buildings were made by A. H. Davidson and S. Sandelius, of San Francisco. Mr. Davidson has been commissioned by Archbishop Reardon to create a cemetery that will be a credit to the Catholic church, and no one who has

seen what Mr. Davidson has accomplished at Cypress Lawn, Cal., will doubt his ability to make good. James P. Murphy is the superintendent.

The heavy burden which a few property owners have to bear when assessed for a local improvement near a cemetery which is exempted under the law from bearing any portion of the cost, has been again called to the attention of the Board of Estimate of Queens, New York. A number of property owners have requested relief from a portion of the assessment on this account. Queens has 2,000 acres of cemetery lands exempt from taxation.

Sentiment has defeated the Boynton cemetery bills in the California legislature. The defeat of the cemetery bills does not prevent the removal of the cemeteries. It does prevent the removal by the machinery worked out by the framers of the Boynton bills. The object of the bills, it has been stated, was to place the responsibility for the removal of the bodies in the hands of the cemetery association trustees and the cemetery owners.

During an electric storm in May at Denison, Ia., the recently erected barn and tool house at the cemetery were struck and burned to the ground.

Trinity Cemetery, at Broadway and 154th street, New York City, has assessments unpaid running back as far as 1876 and amounting to \$68,000. The total of unpaid assessments on cemeteries in all the New York boroughs amounts to \$519,725, and efforts are to be made to collect.

Messrs. Clark & Pike, landscape architects of Willoughby, O., have been awarded the contract for the landscape and construction work for the new cemetery at Waco, Texas, to be opened by the Waco Cemetery Association. It is to be a modern park plan cemetery, to include the up-to-date features in cemetery practice.

The board of directors of the Lincoln Cemetery Association, Lincoln, Ill., are working to create a perpetual care fund. The local press is helping the cause.

The Pennsylvania House Judiciary Special Committee reported the bill to prohibit cemetery companies from excluding gardeners who have been engaged to look after plots by lot holders, it being amended to exempt cemeteries conducted on the lawn plan. The penalty was also reduced from \$500 to \$50 fine.

Improvements and Additions

The new cemetery of St. Jean Baptiste Church, Lynn, Mass., a 12-acre tract purchased by the church, is undergoing improvement. A new entrance is to be constructed also.

The plans are ready for the improvement of the new cemetery Graceland, Racine, Wis., for which Messrs. Hare & Hare, of Kansas City, were commissioned. It is not the intention to finish up the work over the whole area immediately, but to prepare some five acres at a time.

Arrangements are under way for the building of a receiving vault in Riverside Cemetery, Union City, Mich., the voters of the township having recently appropriated funds for this purpose. It will be an attractive structure.

The contract for a fine mausoleum for Morris L. Sternberger, the dead banker and financier, at Jackson, O., was awarded to the Granite and Cut Stone Company, of Portsmouth, at a price of \$22,000.

Mrs. Henry Geymer has begun the erection of a large private mausoleum on her lots in the Bloomington Cemetery, Bloomington, Ill. The new structure will be of modern type and when completed will be one of the most attractive and elaborate buildings of this character in the cemetery.

Rev. T. F. Bannon, pastor of St. Joseph's Church, Willimantic, Conn., has mapped out a plan of improvement for the cemetery which will greatly improve its appearance.

A handsome monument to the memory of the late Mayor Schmidt will be erected in Greenwood Cemetery, Wheeling, W. Va., this summer. The design was prepared by Edward C. Kreutzer, of that city, and is a heavy sarcophagus in style, with very simple and dignified outlines. The only inscription will be the name, "Charles C. Schmidt."

Improvements are to be made in the burying ground in Poquonoc, known as the Old Avery Cemetery, Groton, Conn. The cemetery is one of the historic features of Groton. James Avery, the original Avery, is buried there, as are over a score of Revolutionary heroes. The Smith Lake Cemetery is to be moved to a location adjacent to the old Avery burying ground. It is estimated that about \$3,000 will be expended in improving the old cemetery. Stones will be reset and cleaned and everything possible is to be done to preserve them. A wall will be built about the cemetery, and the grounds will be cleared and graded.

A fine mausoleum is to be erected on the Charin lot in the Springfield Cemetery, Springfield, Mass., by Chester W. Chapin, of New York, in memory of his father, the late Chester W. Chapin, pioneer in the development of Western New England transportation and builder of the Boston and Albany railroad. The plans for the memorial are now in the hands of Tiffany in New York, and final acceptance will probably not be made until the trustees of the cemetery have been fully informed as to their nature. It will probably cost \$50,000.

The Mill Township trustees, in which are the towns of Uhrichsville and Denison, O., have approved the action of the Union Cemetery trustees in the matter of purchasing an addition to the cemetery. The tract has an area of 13 acres.

The Eberhard Cemetery Association, Columbia City, Ind., has been incorporated to operate a cemetery; B. F. Kelser, J. Sterner, J. Zellers.

Mrs. S. M. Simpson. The central portion of the cemetery is the site of the oldest existing burial ground in the country, antequated perhaps only by the one at Tollhouse.

A new cemetery for Lithuanian-speaking people is to be established in Leicester, Mass. The All Saints Lithuanian National Catholic Church has bought a 60-acre tract on the old Stafford turnpike.

burial place of his fathers, and on November 18th of the same year thirty acres of this were sold to the city, and the balance of the grounds were purchased later from Dr. Teegarden. The first interment made in these grounds was in 1852, and the first superintendent was Owen Roberts, followed by Mr. Stewart, John H. Roberts, John Decker, Seneca Raymond, Jacob Herzog, Levi Yance, Fred



ONE OF THE MOUNDS FROM WHICH MOUND CEMETERY TAKES ITS NAME

Elliott Cemetery Association, Elliott, Ill., has been incorporated. Not for profit. Incorporators: John Edmundson, Julia Edmundson and Lars O. Volden.

The local Armenians of New Britain, Conn., have bought a section of ground at Fairview Cemetery for a cemetery of their own. All Armenian burials will take place there.

A 15-acre plot has been bought at Paxton, Mass., for a cemetery, provided the voters give their approval.

A survey has been made of ten acres at Academy, Fresno, Calif., and three-fourths of this acreage is being subdivided into plots for burial purposes. The interment ground will be known as Academy Cemetery, located one-half mile northwest of Academy school house, with Dry Creek running through the northwest corner. The dedication as a public burial ground will be by the owner of the land,

Ground has been broken at Flint, Mich., for Gracelawn Cemetery. One hundred and forty-eight acres of land suitable for cemetery purposes has been secured lying one-half mile north of the city limits. The ground is being developed in accordance with plans prepared by E. B. Wilhelm, of Grand Lawn Cemetery, Detroit. Perpetual care will be incorporated and the "Park and Lawn" scheme followed closely. C. S. Stringer has been engaged as superintendent.

HISTORIC MOUND CEMETERY.

Mound Cemetery, the historic burial ground of Racine, Wis., derived its name from the prehistoric mounds, of which there are fourteen. There is no doubt but that this was at one time an Indian burial ground. On February 3, 1851, Mound Cemetery was purchased by Norman Clark and James Kinzie from Joseph Orrilmette, the Indian, who owned the

Billings, E. G. H. Wendt, Samuel Gates, Andrew Johnson, H. J. Doolin and Louis F. Mohr, who was appointed in 1907 and is still in charge of the grounds.

The cemetery is owned by the city and is managed by a board of commissioners. It is under modern regulations, and the grounds are well kept and efficiently managed.

The view shown on this page is from a handsome illustrated book recently issued by the cemetery commissioners.

THE COVER ILLUSTRATION.

The splendid design of iron fence and gateway entrance to Cave Hill Cemetery, Louisville, Ky., is shown on the front cover page of this issue. Cave Hill Cemetery has long been known as one of the beauty spots of the Falls City. In richness and diversity of its natural scenery

(Continued on Page 11.)

Tarvia

*Preserves Roads
Prevents Dust-*



Mount Hope Cemetery, Chicago, Ill., Treated with "Tarvia B"

Tarvia at Mount Hope Cemetery

Tarvia is ideal for use in cemeteries because it exactly meets the peculiar needs of such places. It is a dense coal tar product which acts as a road binder and encloses the stone in a tough waterproof matrix. The Tarvia concrete thus formed is automobile-proof and will not be pulverized by the crushing loads incident to the transportation of monuments. The surface retains a handsome and smooth contour, draining quickly and forming no mud. A number of cemeteries have abandoned plain macadam in favor of tarviated macadam.

The following letter from Mount Hope Cemetery Association speaks for itself:

November 1, 1912

"We are pleased to express our continued satisfaction as to the results obtained from the use of "Tarvia B" at Mount Hope Cemetery in 1911 and 1912.

We might say that we count as by no means the least advantage derived from the use of Tarvia in the Cemetery—which is on the Park Plan—where drives serve the purpose also of walks, is the superior condition and dryness of the drives thus treated in wet weather and early spring when the frost is going out of the ground. Desiring to maintain a high standard of up keep, we feel that this point alone, if there were no other, would justify its use."

Booklet free on request.

BARRETT MANUFACTURING COMPANY

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Cincinnati Minneapolis Pittsburgh Seattle Corey, Ala.
THE PATERSON MFG. CO., Ltd.—Montreal, Toronto, Winnipeg, Vancouver, St. John N. B. Halifax, N. S. Sydney, N. S.





ESTABLISHED 1890

Devoted to the Improvement of Parks,
Cemeteries, Public and Private Grounds
Published on the 15th of the Month by
ALLIED ARTS PUBLISHING CO.
536 S. Clark St., Chicago

R. J. HAIGHT, Pres. O. H. SAMPLE, Sec. -Treas.
H. C. WHITAKER, Vice-Pres. and Gen'l Mgr.

Subscription \$2.00 a Year (Foreign, \$2.25
Canada, 2.25)

and the broad expanse of its acreage it is second to no other cemetery in the United States.

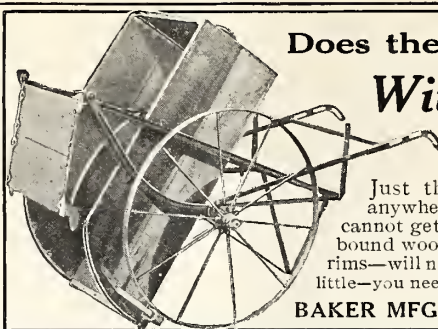
The officers of the cemetery, to whose good management a great deal of the credit is due for its splendid condition, are J. H. M. Morris, president; W. W. Locke, secretary and treasurer; Robert Campbell, superintendent.

The iron gateway entrance referred to was designed, built and erected by the Stewart Iron Works Co., of Cincinnati, and while it is less elaborate than other installations of this well-known firm of iron fence manufacturers, it is exactly suited to the purpose.

The demands of the cemetery association were for an unclimbable fence and gateway entrance that would afford absolute security against vandals, which is the first consideration of the lot owners' interests; also to prevent the destruction of the grounds and flowers by trespassers, the care of which is a considerable expense to the cemetery association.

As some detailed information regarding the construction of this new and very unusual design of entrance will be of interest to cemetery superintendents and park commissioners who may be contemplating a like improvement, we have secured the following specifications from the Stewart Iron Works Co.:

The double drive gates are 16 feet between posts, gradually sloping from a height of 8½ feet at the posts to a height of 10 feet in the center. The hinge bars are 2 inches square; center frame bars, 2x¾ inch; three upper horizontal rails, 2x¾ inch, three-rib channel; bottom rail, 2x2½ inch angle. Long pickets are ¾ inch square; short pickets, ¾ inch square; all spaced 5 inches on centers. The pickets as they run across the bottom of the gates are spaced 2½ inches on centers. Scrolls and other filigree work, ¾x¼ inch, except paneling in the center of gates and at sides, which is ¾x¾ inch. Gates are constructed with substantial tubular lock and ring hand-holds. Walk gates are 5 feet between posts, with 2x1 inch hinge bar; frame bars are 2x¾ inch, with angle strike bars. The upper rails are 2x¾ inch, three-

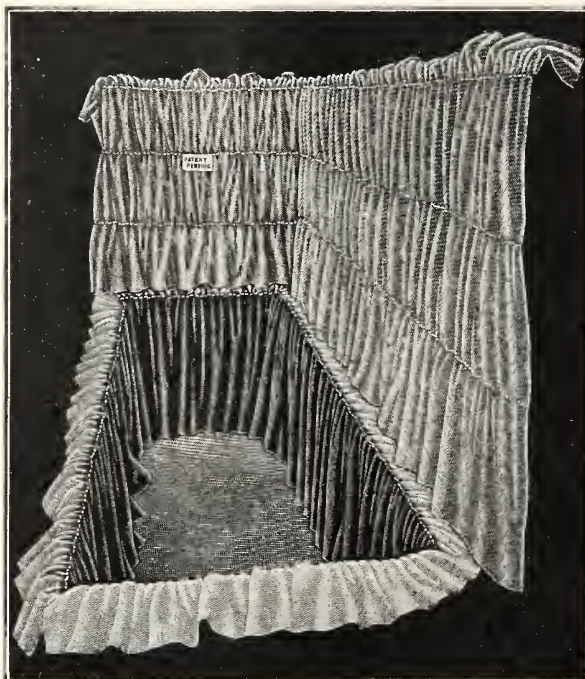


Does the Work of One Extra Man

Witten Automatic Hand Dump Cart

Just the thing for parks and cemeteries. Goes anywhere—handles any material—dumps automatically. cannot get out of order. Strong malleable iron frame—iron bound wood box—capacity 800 pounds. 36-in. wheels—2-in. rims—will not cut sod. End-gate under perfect control. Costs little—you need one. 10 days' free trial—write *Now* for particulars.

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colors and prices to suit everybody.

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made to order. Our olive green tents blend with nature and take away the fair ground appearance of the ordinary tent.

Dirt Covers

Our olive green duck dirt covers last four times as long as any oil cloth cover, and always look better.

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all styles and at reasonable prices. Green and grey crex for around the grave.

LOWERING DEVICES, CEMETERY TRUCKS, CASKET RACKS, and a full line of all undertakers' supplies.

DODDRIDGE GRAVE DECORATING CO.

MILTON, IND.

To who have anything to sell that is used in outdoor improvements in Parks and Cemeteries, the August and September Fall Planting Issues of Park and Cemetery, will open a valuable market. Copy is due August 1.

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Made in All Sizes
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HAWLEY SARCOPHAGUS, CHATHAM, N. Y.

New Evidence

bearing upon the stability of marble has recently been brought to light. An expedition sent out by the University of Chicago succeeded in digging up an old marble statue. It was embedded in the clay walls of a trench near Bismya on the plains of Mesopotamia, and the inscription on the shoulder of the white marble figure could be distinctly traced. Dr. Edgar James Banks, the man who had charge of the work, declares that the statue must be 5,000 years old.

This gives striking emphasis to an already well known fact. The world is full of examples which bring out the endurance of marble, but in the present instance, a piece of sculpture—complete even to the inscription—has come down to us through 50 centuries. It's a hard record to beat.

The Hawley Sarcophagus is a white marble memorial which we finished for W. P. Pratt, Chatham, N. Y. It forms a part of the mausoleum which was reared in memory of Edwin A. Hawley, the railroad magnate.

VERMONT MARBLE COMPANY

PROCTOR VERMONT

BOSTON—NEW YORK—PHILADELPHIA—WASHINGTON
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VANCOUVER—B-C—PETERBOROUGH—ONT

rib channel; bottom rail, 2x2¼ inch angle. Walk gates have the same sort of lock as used on drive gates, also pickets and scrolls. The hinge bars of both the drive gates and walk gates turn on pin-bearing sockets.

It is quite evident from the specifications that in addition to being a very neat and attractive entrance, as shown by the illustration on front cover page, it is substantial and durable.

PUBLICATIONS RECEIVED.

"Commercial Fertilizers," Bulletin 166, May, 1913, from Purdue University Agricultural Experiment Station, Lafayette, Ind.

Thirteen large colored souvenir cards, 6x8 inches, showing fine views in Sunset View Cemetery, Berkeley, Cal.

Wholesale trade list and special offer circular from Forest Nursery & Seed Co., McMinnville, Tenn.

"Ideal Ideas," descriptive catalog of Ideal Concrete Machinery Co., South Bend, Ind.

"Pot-Grown Strawberry Plants for 1913," illustrated folder from Elizabeth Nursery Co., Elizabeth, N. J.

CLASSIFIED ADVERTISING

3 cents a word each insertion; minimum price 50 cents. Copy must reach us by the 1st of the month.

HARDWOOD ASHES.

No. 1. Canadian Unbleached Hardwood Ashes. Nature's own Fertilizer for grass. No fertilizer equals my Ashes. Price and freight rates quoted, correspondence solicited. George Stevens, 104 Douro St., Peterboro, Ontario Canada.

VINCA MINOR MYRTLE.

Strong field-grown plants \$2.50 per 100, \$24.00 per 1,000.

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Madeira Nurseries. Madeira, O.

SITUATIONS WANTED.

Experienced superintendent of modern cemetery desires an offer to enter a larger field. In present position 11 years. Progressive, married, temperate man of good address. Highest reference furnished. Knowledge of mapping, etc. Address, C. J. G., care Park and Cemetery.

Situation Wanted—Position as assistant superintendent of modern park or cemetery. Energetic, educated, temperate, married man of good address, accustomed to rough work and handling men to advantage. Experienced in cemetery office routine and construction work, surveying, mapping and platting, landscape architecture, topography, designing and execution. Road building, grading and land drainage. Also thorough knowledge and experience in horticulture, nursery, arboriculture, entomology, large tree moving and planting, spraying, pruning and tree surgery. Address: "D. C.," care of Park and Cemetery.

Situation Wanted—Capable landscape gardener and nurseryman. Eight years experience in grading, road construction, sewerage, natural stonework, handling men, etc. Wishes position with landscaper or contractor. W. Plagwitz, 156 Laurel Ave., Arlington, N. J.

Wanted—Position as foreman in a park or cemetery, have had twenty-five years experience in one of the best and largest cemeteries in the United States. Eighteen years as foreman. References. Address G. D., Park and Cemetery.

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Made 3-inch, 3½-inch, 4-inch, and 5-inch diameters; 8, 10, and 12-inch lengths, and all kinds of top marks. Nearly white in color and practically everlasting. Made under Haase Concrete Wks. Patents No. 680,432 and 734,854 For circulars and prices, Address OAK PARK, ILL. Cemeteries West of Rockies Address, LEO. G. HAASE, Pasadena, California



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White as Marble

Cheap as Wood

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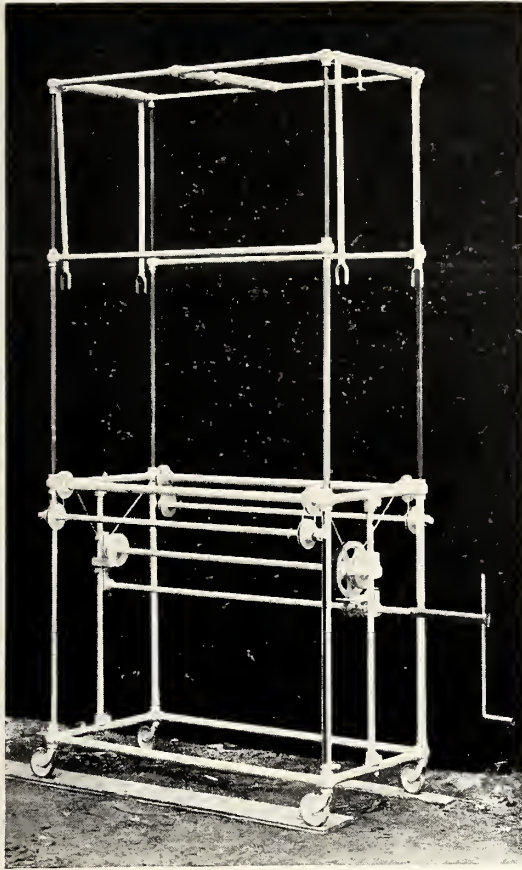
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Cemetery work a specialty, of which I have had 23 years' experience.

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CUT No. 1 shows the Bomgardner Adjustable Private Mausoleum Elevator for placing caskets in 3rd, 4th and 5th crypts; also for private compartments in community mausoleums.

Weights 150 lbs., and takes up but 30 x 48 inches space on the floor. Is strong enough for any case.

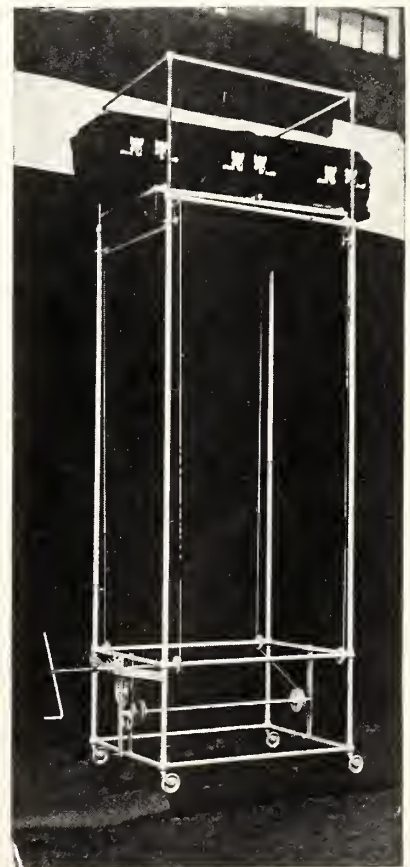
Sent on approval.

CUT No. 2. The Bomgardner Community Mausoleum Elevator. The one shown elevates the casket to the 6th crypt. The casket rests on rolls which are connected by sprocket chain and by turning a crank attached to the center roll, the casket is moved into the crypt very easily. Note the mechanism and sightliness of the make-up.

Sent, as are our lowering devices, cemetery trucks, mausoleum trucks and cement vault trucks on approval.

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"The Wellman"

King of Hoisting Devices

Fills all Requirements of Public
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THE "Wellman" is the only Hoisting device on the market from which caskets can be loaded or unloaded from either side or end, and with upright extensions furnished can be adjusted to any height. Extensions permitting of hoisting and lowering of caskets through chapel floor.



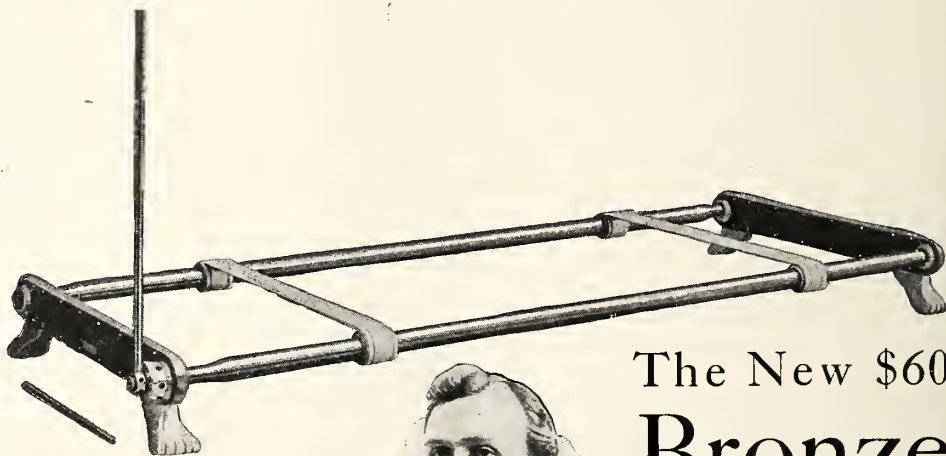
Safer than Pall Bearers

The Wellman

King of Lowering Devices

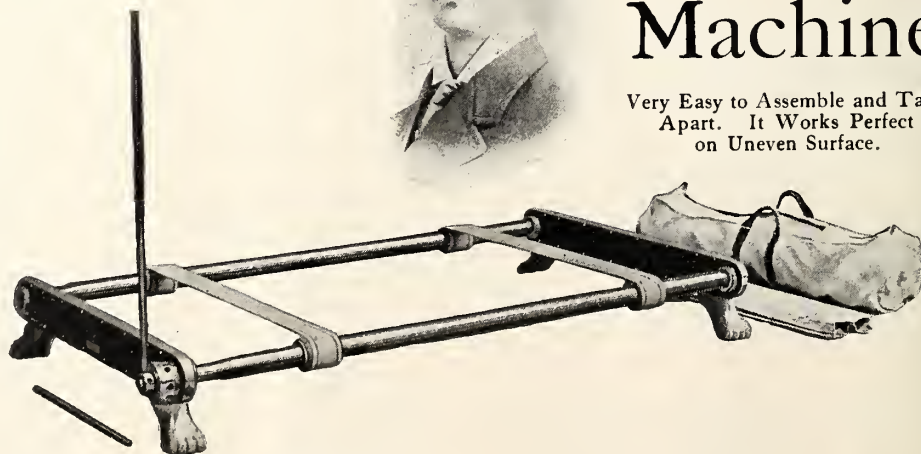
The top cut on this page shows the machine in the adult size. The bottom cut is the machine when adjusted for the child. The canvas cases at end of bottom cut is the machine when packed for transportation.

For Full Particulars, Write



The New \$60 Bronze Machine

Very Easy to Assemble and Take
Apart. It Works Perfect
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Make Your Parks More Attractive

and less expensive by treating the paths and drives occasionally with this odorless, stainless and colorless chemical—

SOLVAY

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CALCIUM CHLORIDE

It improves the appearance of a road, adds to its durability and keeps it cool, clean and dustless in the hottest weather.



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in the easiest and most economical manner, by having waste cans located in the most convenient and accessible places.

Your patrons will use them, but will want to see the sort that have an attractive appearance as well as good utility qualities.

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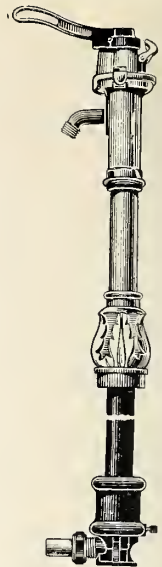
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THE OLD METHOD OF HOING OUT WEEDS AND GRASS IS TOO COSTLY
TRY OUR WAY AND YOU WILL NEVER BE CONTENT WITH ANY OTHER

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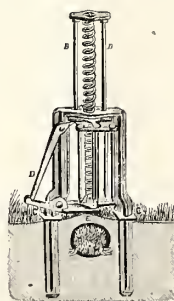
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Advertising copy is due
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Park and Cemetery
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First class stock growing on new ground
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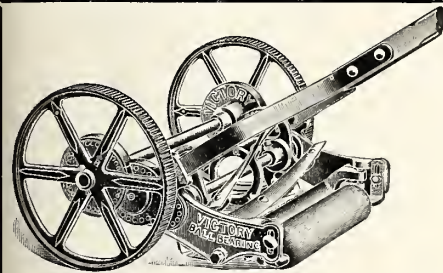
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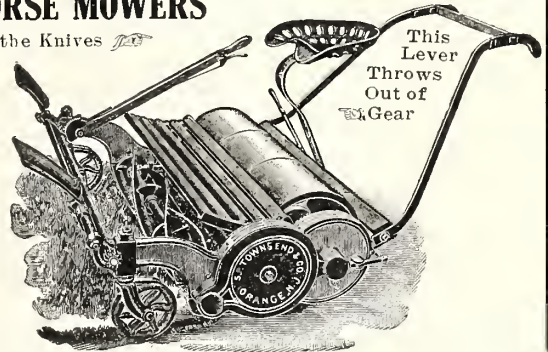
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This Lever Raises the Knives

All Our Hand Mowers
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Guaranteed Under the Insecticide Act, 1910. Serial No. 321

Save your plants and trees. Just the thing for Greenhouse and outdoor use. Destroys Mealy Bug, Brown and White Scale, Thrip, Red Spider, Black and Green Fly, Mites, Ants, Insects on Rose Bushes, Carnations, etc., without injury to plants and without odor. Used according to directions our Standard Insecticide will prevent ravages on your crops by insects.

Non-poisonous and harmless to user and plant. Leading Seedsmen and Florists have used it with wonderful results. Destroys Lice in Poultry Houses, Fleas on Dogs and all Domestic Pets. Excellent as a wash for dogs and other animals. Relieves mange.

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Dilute with water 30 to 50 parts

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Directions on Every Package.

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Our work is the best.

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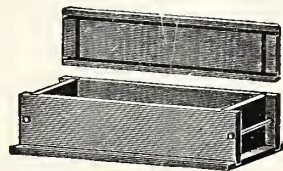
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SLATE For Interior of Mausoleums.
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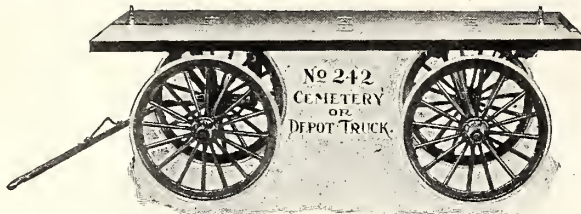
Pure and unadulterated.
Dried and pulverized.

It can be readily applied to the soil. Does not make lawns unsightly or have to be raked off. Free from Weeds. "Sheep's Head Brand" is pure sheep droppings mixed with no other manure. Acknowledged Nature's best and richest fertilizer. Send for quantity prices and booklet.

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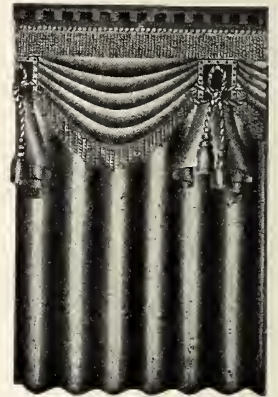
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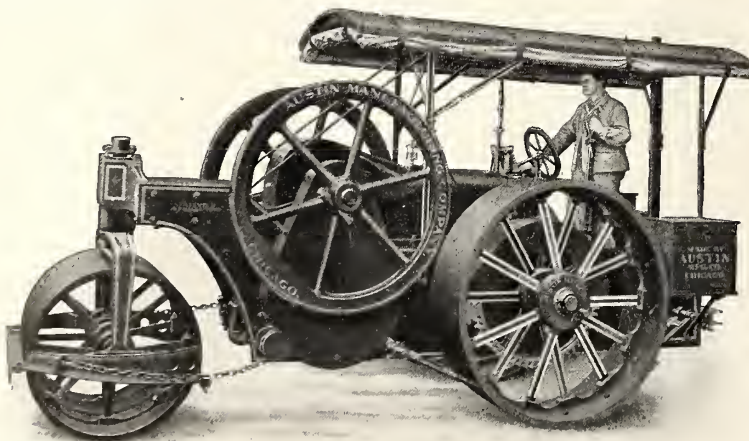
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Vol. XXIII., No. 6 AUGUST, 1913

PLANTING AND PLANNING ISSUE

The Yucca and the Yucca Moth—Planning and Equipping a Play-Park—Complete Plan for Small City Park System—Characteristic Trees of a Philadelphia Cemetery—Interesting Perennial Garden



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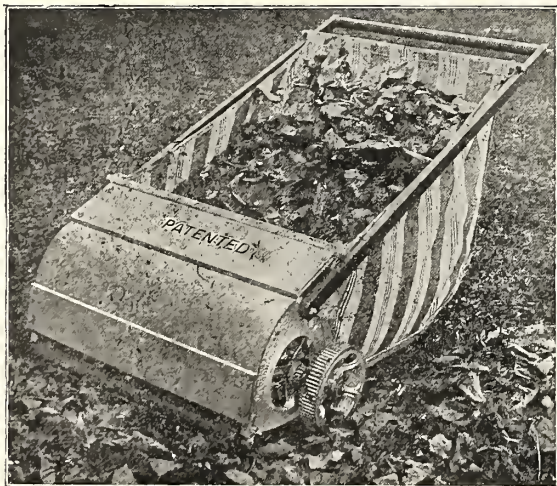
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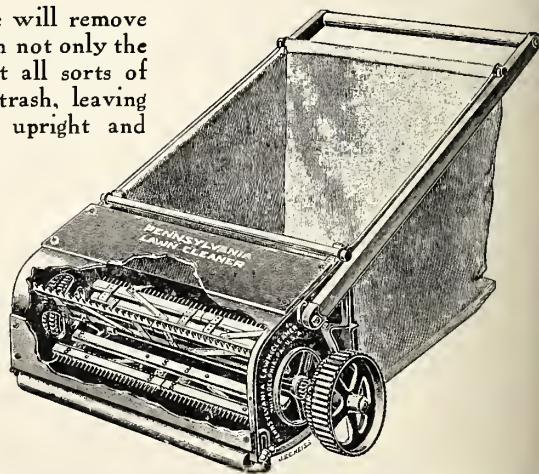
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It is easy to operate, and with it one man will do more and better work than four men with hand rakes.

24-inch Cleaning Area, Shipping weight 80 lbs. - - List \$20.00
36 " " " " " 126 " - - " 30.00

Discount on Application

"Will be glad to furnish one of these machines on trial to any Institution interested in reducing the cost of raking their lawns."

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EARLY

Early	Size	Each	12	100
Fastidiosa (Calor 1881). Very large, double, pure white, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, pure white, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, pure white, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, pure white, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00

MIDSEASON

Midseason	Size	Each	12	100
Golden Harvest (Calor 1890). Medium, fringed, pure white, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, pure white, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, pure white, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00

PALE PINK PEONIES

EARLY

Early	Size	Each	12	100
Oscar de Nemay (Calor 1887). Very large, double, pale pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, pale pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, pale pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00

MIDSEASON

Midseason	Size	Each	12	100
Madame de Verneville (Calor 1880). Large, fringed, pale pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, pale pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, pale pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00

DEEP PINK PEONIES

EARLY

Early	Size	Each	12	100
Editha Superba (Lemon 1831). Large, double, deep pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, deep pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, deep pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00

MIDSEASON

Midseason	Size	Each	12	100
Madame de Verneville (Calor 1880). Large, fringed, deep pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, deep pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, deep pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00

RED PEONIES

EARLY

Early	Size	Each	12	100
Adeline Rousseau (Dessert 1881). Large, double, red, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, red, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, red, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00

MIDSEASON

Midseason	Size	Each	12	100
Madame de Verneville (Calor 1880). Large, fringed, red, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, red, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, red, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00

LATE

Late	Size	Each	12	100
Bronze Schroeder (Kelway 1890). Very large, double, bronze, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, bronze, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, bronze, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00

SINGLE WHITE PEONY

Single White Peony	Size	Each	12	100
Madame de Verneville (Calor 1880). Large, fringed, white, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, white, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, white, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00

LATE

Late	Size	Each	12	100
Madame de Verneville (Calor 1880). Large, fringed, white, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, white, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, white, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00

SINGLE DEEP PINK PEONY

Single Deep Pink Peony	Size	Each	12	100
Madame de Verneville (Calor 1880). Large, fringed, deep pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, deep pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, deep pink, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00

SINGLE RED PEONY

Single Red Peony	Size	Each	12	100
Madame de Verneville (Calor 1880). Large, fringed, red, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, red, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00
Madame de Verneville (Calor 1880). Large, fringed, red, fringed edges, 800 very fragrant, full, vigorous grower.	Divided	1.50	18.00	180.00

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No 5

Bronze Signs Beautify Your Lawn and Increase Perpetual Care Deposits

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Our Bronze Perpetual Care Stakes are the Quality Markers for Beautiful Lawns

The above cut is our solid Bronze No. 5 head, and is one of our best patterns. It is used by a great many cemeteries throughout the United States for both Annual Care and Block Markers as well as for Perpetual Care Stakes.

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The use of Solvay Granulated Calcium Chloride is the cleanest way to prevent dust on tennis courts, running tracks, ball grounds, play grounds, etc. Read this letter:

CITY OF BALTIMORE

Department of Public Parks and Squares

Baltimore, Md., May 24th, 1912.

Gentlemen:

I have your letter of the 10th inst., making inquiry in relation to Granulated Calcium Chloride which you sold the Park Board this year. We used this Calcium Chloride at Patterson Park on the running track, athletic fields, gymnasium grounds and children's play grounds. We also used it at the City Springs Square athletic area and children's play grounds, and at Riverside Park children's play grounds and boys' running track, and a large ball ground area at Latrobe Park which is kept free from vegetation.

The local superintendent of that district of the city reports enthusiastically upon the results, with the statement that it keeps the ground smooth, compact and without dust, and there has been no complaint from its use in connection with the thousands of small children and athletes who use these areas.

Yours truly,

(Signed)

Gen'l Supt.

SOLVAY Granulated Calcium Chloride

Is a natural road binder. Without watering, it keeps earth and gravel as firm, smooth and compact as expensive, constantly sprinkled and rolled macadam. This means a big saving for every park and cemetery. Remember Solvay Granulated Calcium Chloride is applied as a dry, coarse powder and is absolutely

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VOL. XXIII

AUGUST, 1913

No. 6

EDITORIAL

Park Superintendents at Denver

The annual convention of the American Association of Park Superintendents, to be held at Denver, August 25, 26 and 27, promises to be one of the most interesting in the history of that live and useful organization. As is noted in the program elsewhere in this issue, especial attention is to be given to practical field work, and the Denver park system offers unusual opportunities for the study of many phases of

modern park activities. Denver has made rapid strides in park development, and offers a most profitable field for this three days' school of experience and demonstration. It is to be practical "laboratory" work in actual park affairs, and every progressive superintendent or park official who can possibly get to this meeting will find it time well spent in advanced education and inspiration for his work.

Organization of State Parks

The activities of the recently organized Illinois State Park Commission call to mind the increasing importance of the work of organizing state parks, and the progress that is being made along this line in a number of states. The Illinois Park Commission was created by an act of the Legislature approved June 10, 1911. The sum of \$150,000 was appropriated at the same session of the Legislature. The commission has spent the \$150,000 and has acquired for the state the nucleus of a park, some 304 acres. The site whose purchase was authorized by the bill creating the commission is a strip of land containing 1,155 acres lying along the south side of the Illinois River and including Starved Rock and various canyons and picturesque bits that go to make this region famous. The park site proper, on which is Starved Rock, consisted of 280 acres. The Starved Rock park is located between Ottawa and La Salle and directly across the river from Utica. As soon as the park was taken over by the state the commission set about organizing it and improving it. A custodian

was appointed, the grounds were efficiently policed, the sale of liquor prohibited under the statute, and disorderly persons were prohibited the grounds. Concessions were let upon competitive bids and a considerable sum of money was derived from their source. The concessions include a hotel and lunch room; ice cream, candies, etc., bowling alley and dance hall; row boats and power boats; livery and auto bus; 130 acres of fertile farm land; souvenirs; electric light and power service. The commission reserves the right to supervise all charges made by persons holding concessions and to exercise general authority over conduct on the grounds. The patronage of the park for 1912 was approximately 75,000, as against 25,000 under private management. The popularity of the park was greatly increased during the season of 1912 by the establishment there of the camp of the American Film Manufacturing Co. This concern had a company of sixty to seventy-five people there for the purpose of reproducing the history of Starved Rock and particularly that part in which La Salle, Tonty, Joliet and Marquette were concerned.

Editorial Notes

Another request for delay in the accounting ordered by Supreme Court Justice Giegerich from the Pinelawn Cemetery Association, in the long-pending shareholders' proceeding against the company, was recently made before Percival H. Gregory, as referee, at 256 Broadway, Manhattan. William H. Locke, Jr., secretary and treasurer of the association, asserts that it has been a physical impossibility to get ready the more detailed account ordered last month by Mr. Gregory, in the place of the one which gave only general summaries, in the time at his disposal. This is the latest phase of a bitterly contested suit which has revolved around Pinelawn Cemetery for about six years, and which has brought much unenviable publicity to former Assemblyman Abram C. Degraw, for many years one of the best-known figures of the Greenpoint section of Brooklyn. Pinelawn is a cemetery tract of many hundreds of acres, about thirty miles out on Long Island, and its development was begun more than ten years ago by Degraw through the consolidation of eleven cemetery associations. Many shareholders were attracted to it through Mr. Degraw and through the promise of enormous profits, and its directorate included many well-known persons. But in 1905 there came dissension and former United States Senator Depew resigned as a director, accompanying his resignation with a letter in which he attacked the officers of the company. This was followed by Mr. Tyndall's action, his suit being begun in 1908.

Legislation on cemetery matters has been unusually active in Pennsylvania recently, as has been noted in these pages. The bill to provide for the keeping of cemetery records was passed overwhelmingly at a recent session, but was made

to apply only to Philadelphia as the result of objections of Senator Homsher, of Lancaster County, who feared that the enactment of the measure as originally drafted would cause unnecessary annoyance to the Dunkards and other religious organizations in his section of the state, which have private or society burial grounds. The preamble of the bill sets forth that "owing to loose and inefficient methods of listing now employed in many burial grounds, it is difficult and sometimes impossible to discover the location of certain graves." The bill requires the keeping of a complete list of interments under an alphabetical arrangement of names, with the date of burial and the number and owner of the lot in which the grave is situated. A card index system is to be required and the records shall be open to inspection of "all persons having an interest therein." A fine of one hundred dollars is provided for violation of the act. Pennsylvania has also passed a bill, introduced by Senator Vare, which permits the removal of bodies from old cemeteries and the sale of the grounds when, because of its location, they are needed for other purposes. The measure directly affects cemeteries situated on tracts which, although originally on the outskirts of Philadelphia, are now surrounded by dwelling and business establishments. The bill, which was defeated on third reading by the House recently, was replaced on the calendar by Representative Wilson, of Philadelphia, who explained that many of the members had voted on it under a misapprehension. By the provisions of the bill, when a cemetery company contemplates removing graves to another plot of ground, it must first obtain a decree from the Court of Quarter Sessions.

THE YUCCA AND THE YUCCA MOTH

The Missouri Botanical Garden at St. Louis has a valuable collection of hardy Yuccas, and the garden bulletin for June contains an interesting discussion of the Yucca and the Yucca moth.

in Europe, was struck with the fact that Yuccas rarely ever fruited in that country. He already knew that specimens and reports from collectors on the Atlantic coast and the Western plains, where various

at this point he turned the investigation of the insect over to Dr. C. V. Riley, then the State Entomologist of Missouri. Together they observed and worked till the beautiful story of two life-histories was disclosed—one, of the plant; the other, of the insect. Dr. Riley's studies revealed to him that the moth was so highly specialized, more noticeable in the mouth parts and egg-laying device, as to be entirely different and distinct from any other moth of its near kindred that had previously been described. Thereupon he gave to it the technical name of *Pronuba yuccasella*, the "Yucca Pronuba," or "Pronuba Moth."

The Yucca flower, as has been stated, is almost closed in the daytime and but few insects can enter it. Neither does it produce nectar—the chief attraction to insects that commonly visit flowers. However, if the partially closed flowers are examined during the day, many of them will disclose the hiding places of a tiny white moth, or "miller," scarcely more than half an inch long. It folds its wings together in roof-form over its back and rests lengthwise along one of the stamens. The whiteness of the insect blending with the white-walled floral chamber, all in diffused light, gives it ample protection, and indeed, one must frequently be very diligent in his examination to be able to see it at all. As dusk comes on and the flowers begin to open and give off their fragrance, the moths become very active, flitting about from flower to flower and from plant to plant. If, with a small "flashlight" or "bull's-eye" lantern, one takes a position by a plant he will probably be able to see the moth climb one of the stamens and with its specially constructed mouth parts scrape all the pollen from the anther and roll it into a small pellet. This is then carried to a second stamen and the pollen from it is added to the pellet—the process being repeated from stamen to stamen until a good-sized ball is formed. Then the insect changes its scene of operation. Leaving the stamen, it goes to the pistil, which it explores very carefully, running around it and from top to bottom. When satisfied with the locality, it turns about till its head is toward the stigmatic, or upper end of the pistil; then it slowly backs downward between two stamens, feeling the surface of the ovary very carefully with the tip of its abdomen. When a suitable location is found, usually just below the middle of the pistil, it stops the body movement and begins to drill with its ovipositor, or egg-depositing device. This is long and sharp-pointed, especially adapted for drilling a small, deep hole into the heart of the pistil, where a single long, thread-like, transparent egg is deposited. As soon as this is accomplished the moth removes the ovipositor



YUCCA FLACCIDA GLAUDESCENS.

One of the first students of the Yucca and its associated insect was Dr. George Engelmann fittingly styled the pioneer botanist of the West, a resident of St. Louis and with whom the early history and foundation of the Missouri Botanical Garden is so closely associated. Dr. Engelmann's interest in the Yuccas began over fifty years ago, a time when but four species were generally recognized. Explorers of the West and Southwest sent or brought to him many specimens of the genus—their leaves, flowers and fruits. These, however, did not clearly harmonize with such knowledge of the group as had previously been obtained and the greatest confusion existed as to the plants. The largest herbaria were notably poor in material, especially of fruits and seeds. Dr. Engelmann, in his studies and explorations

species were indigenous, showed that both fruits and ripe seeds were produced abundantly. The scientist's question, Why? appealed to him and he set about to solve the problem. From his knowledge of the process of pollination he suspected this work was carried on by some insect native to the habitat of the Yuccas, but as yet not introduced into Europe with the plants. Careful observations on the flowers of Yuccas growing beneath the window of his St. Louis home were soon rewarded with success. All circumstantial evidence pointed to a tiny white moth as the object of his search; a conclusion further substantiated by the discovery of the moth in the flowers of Yuccas growing in other and more remote parts of the city. Since Dr. Engelmann was a botanist, he was interested chiefly in the plant side of the subject and

and then proceeds up the pistil until its head reaches the stigma. The stigma of the Yucca is a triangular well or tube formed by the union of the three upright horn-shaped processes of the ovary. Securing a firm foothold on these processes, the moth proceeds to shave all particles of the pollen pellet and with its tongue places these in the stigmatic well or cavity, forcing them far down. This done, it backs down the pistil and deposits another egg as before, but at a different point, and again going to the stigma it repeats the process of scraping off pollen from its pellet and forcing the particles down the cavity. This may be repeated until the stigma well is entirely filled. Frequently, however, the moth removes to another blossom and repeats the interesting performance. Each flower is in condition to be fertilized only during a brief period of time, since after the first evening the hornlike processes of the pistil close over the stigmatic chamber and thus preclude the possibility of further pollination. In the course of about a week the egg hatches and the resulting larva feeds on the developing ovules which constitute its only food. When it has reached a mature size it burrows a passage to the exterior of the capsule and falls, or lets itself down by a silk thread, to the ground. Here it bores several inches below the surface and forms a tough silken cocoon intermixed with soil. It remains as a larva, or grub, within its cocoon during the fall, winter and spring months and transforms

to the pupa or chrysalis state only a few days before emerging as an adult moth when the Yuccas bloom again in June.

It has been found that the Yucca flower is incapable of fertilizing itself; moreover, it is impossible for the wind to carry pollen from one plant to another. Extensive observations by many scientists in different parts of the country, since the early discoveries by Drs. Engelmann and Riley, prove that no other insect does this work which is so absolutely necessary to the production of seed. The amount of pollen placed in the stigma chamber by the *Pro-nuba* moth is sufficient to fertilize all the numerous ovules of that flower, while each larva hatched from the eggs deposited eats but comparatively few ovules—only ten or a dozen—thus allowing a vast majority of them to mature. Were it not for the intervention of the moth the Yucca plant could never reproduce itself except by offshoots or an accidental division of the parent plant. The plant depends entirely on the little moth to aid it in the natural method of reproduction. On the other hand, this moth does not associate with the flowers and fruits of any other plant than the Yucca. It feeds during its larval or "worm" stage only and then wholly upon the seeds of Yucca developing within the fruit of the plant. Should the adult moth deposit its eggs in the ovary and then fly away, the eggs would hatch, but the young larvæ would soon perish from lack of food. To meet this demand the moth has devel-

oped a form of instinct which impels it to place pollen in the stigma of each pistil in which it has deposited an egg, insuring by this means the fertilization of the ovules and consequently a liberal supply of food for its offspring. Thus the insect is wholly dependent on the Yucca for its existence. Through ages of association the plant has become adapted to such a degree that it cannot be pollinated by any other means in nature and at the same time the insect has become so adapted that it cannot carry on its life history with any other plant. To quote from one authority: "The insect offers such a remarkable instance of special modification of parts to a particular end, and there is such a striking interdependence between it and its food-plant, that Hermann Mueller, who from his extensive studies of the relations between plants and insects, is most competent to speak on the subject, avowed it to be the 'most wonderful instance of mutual adaptation' yet detected." These are in brief the facts that have been brought to light and may be observed by anyone who will take the time and have the patience to watch the snowy little insects on any clear, warm evening.

It is of especial interest to know that many of the original observations, both of Dr. Engelmann and Dr. Riley, were made at the Missouri Botanical Garden through the kindness and encouragement of its founder, Mr. Shaw.

CHARACTERISTIC TREES in PHILADELPHIA CEMETERY

How desolate are the older burial grounds, entirely barren of trees, except those specimens which have grown wild, as compared with our modern park plan cemeteries, and how restful and inspiring are beautiful groves of judiciously planted trees. The lesson of trees was well learned years ago at West Laurel Hill, Philadel-

phia, which has a collection of trees that shows the wise conception of the founders and subsequent care and training under succeeding managers. The care of the trees is a paramount issue under an experienced and regularly maintained forestry department whose duty is to uphold the high standard of tree perfection. Every

tree is considered a valuable asset and no labor or expense is spared to guard against disease or decay. For the encouragement, education and general appreciation of the lot holders a tree catalogue is issued, giving the common and botanical names, natural history and general uses as a product of manufacture. Each tree bears a num-



PLATE NO. 3.



PLATE NO. 1.



PLATE NO. 5.

ber corresponding to number in catalogue, enabling anyone to easily learn the different trees. New additions are planted each year. Generally selections of new and rare specimens suitable for this climate are made. The catalog embraces something

This may seem entirely improper, but sooner or later there will be erected in the immediate vicinity a granite or marble memorial which, as with the religion of Caste or Paganism, the shadow must not mar.

ian Poplar (*Populus nigra fastigata*). Other trees of this class are the Pyramidal Oak, Monumental Elm, Silver-leaved Lombard Poplar, Pyramidal Scotch Pine, Pyramidal Larch and Swiss Pine.

The Pin Oak, also on Plate 1, is a clean,



PLATE NO. 2.



PLATE NO. 4.

over 1,000 varieties of rare trees and shrubs. The picturesque landscape is secured from four distinct classes of trees, viz., columnar, pendulous, diffused or round headed and lateral or spready branched trees. It would be impossible to carry out any scheme on a large scale without the entire combination. The great variance of color of foliage from the delicate green of the Larch, Ginkgo, American Beech, Sugar Maple, Weeping Willow, Star Gum, Ash and Aspen, to darker shades of Norway Maple, Elms, Lindens, English Beech, Lombardy Poplar, Hicoria and various oaks. Other fine trees are the Purple Beech, Purple Sycamore and Norway Maple and Purple-leaved Hazel, also Golden Oak, and those with light gray under surface of foliage give variety of bright color. The winter aspect of trees is enhanced by various colored twigs and bark, including red twigged English Linden, Red and White Birch, Sassafras, Golden Chain and Pagoda tree.

There are many trees classed as perfect specimens which are entirely unsuited for cemetery planting. The primary requisite is to have trees grow. Many outgrow their usefulness. The early training of cemetery trees should be to encourage a straight, single trunk and high crown at least twenty feet to the first branch. The accompanying plates illustrate the perfect style of growth.

So to appease the offense, an act of butchery, so-called tree surgery, separates the branch from the trunk. The wound, which may heal if properly treated, or may not heal, and be an inviting abode for all manner of boring insects or a source of decay. As a measure of conserving as many trees as possible, the managers of West Laurel Hill Cemetery restrict the sale of lots containing any valuable specimens.

The selection of trees for cemetery planting should have careful consideration with regard to storm resistance, style of growth. Those least subject to insect attacks, those which are deep rooted and those suited to soil climate and environments. Some of the trees which have made West Laurel Hill Cemetery noted, many planted forty to forty-five years ago, are shown here. The Ginkgo, *Salisburia adiantifolia*, shown in Plate 1, is a tall growing, erect columnar shaped tree of the conifera family; many branched, of short, upright growth and peculiar shaped leaves similar to the maidenhair fern. It is an exceptional tree for cemetery planting, although of slow growth. It seldom interferes with adjacent memorials, although if not properly pruned when young some of the family, and I think a different variety, have a tendency to heavy lateral branches.

Another tree of the same type is the Ital-

erect stemmed tree, although of spready, drooping branches.

The American Larch, in Plate 2, a tree of great beauty in early spring, grows to great height, straight stem. The American Linden, also on Plate 2, is tall growing, with graceful, drooping branches, free from adjacent interference with memorials. In the background, on Plate 2, is a *Magnolia Soulangiana*, and a Boxwood in the foreground; both are extensively planted. The Scotch Pines, with their steel colored foliage and of slow growth, are shown on Plate 3. The Mugho Pine, immediately in the rear of the Oriental Plane, on Plate 3, is characteristic of the numerous specimens. The Cucumber Magnolia is an interesting, strong, graceful tree with beautiful heavy foliage and of somewhat spready growth. The Nordman's Fir, a very rich green in winter, with beautiful style of growth.

The Purple Beech has beautiful color effects, is of slow growth, very spready, therefore strictly of the class which could not be planted in great numbers because of the overshadowing tendencies.

The Norway Maple is probably the most popular tree for all uses, but the straight stemmed trees are very rare, owing to the great tendency to produce round-headed specimens, cutting the leaders and other unwise pruning.

The trees shown on Plates 4 and 5 are perfect in style. The high arching elms seen in Plate 5 show the utility of such valuable trees, entirely removed from any interference.

The Star or Sweet Gum tree is a striking tree with beautiful foliage, slow growing and of clean habits.

Two interesting trees are the European Linden and European Mountain Ash that are very valuable for flower, fruit and foliage.

The Weeping Beech is a peculiarly striking tree, but, of course, could only be planted in unoccupied ground.

The English Holly seems to thrive on the protected hillside at West Laurel Hill, where some very beautiful trees are to be found.

Other beautiful trees are the Weeping Birch, Weeping Elm, Weeping Willow, English Beech, Sugar Maple, Japanese Pagoda tree, Imperial tree, and many others.

WELL PLANTED PARK PERENNIAL GARDEN

Substantial improvements have been made in Humboldt Park, Chicago, within the past few years to make this one of the most interesting of the city's great pleasure grounds.

One of the first improvements in this park was the removal of the old boat landing, to prepare the foundation for the new pavilion and boat landing which was constructed in 1907, a large, modern building, with spacious pergolas and terraces from which the surrounding landscape may be viewed. Adjacent to the boat landing are rooms for serving refreshments; also a music court, with terraces and transportable band stand. A broad terrace, constituting the roof of the boat landing, is ornamented with vases and boxes of flowers.

The land west of the lagoon was lowered and a large meadow created with higher elevations toward the west and

south. A low bridge was built to prevent the boats from entering the garden on the south. A music court with covered shelter, to afford seating capacity for the public during the band concerts, was provided by the endargement of the concourse surrounding the Von Humboldt statue.

The splendid rose and perennial garden in this park constitutes one of the most beautiful and picturesque gardens to be found anywhere in this country today. Among the special features which attract and please the public are the garden hall, which connects the rose garden from the west with the naturalistic garden beyond; the flower boxes, the ornamental vases, and, at the eastern entrance, opposite Reuter's statue, the artistic gateway, with garden lanterns, fountains and ornamental seats; also the tea houses for afternoon gatherings of women's and children's clubs; the lagoon, which has been narrowed to a brook and filled with water lilies and other

aquatic plants; the music court, with its covered shelter; the wading pool for children, which occupies the site of the old lagoon — all representing improvements which have added permanent delight and attractiveness to this park and have contributed in making its garden second to none in this country.

Several years ago the Municipal Art League of Chicago installed in the rose garden an exhibit of model sculpture, to show the effect of placing statuary in a park of this character. The exhibit lasted for several weeks and attracted widespread attention. It was so successful that a similar exhibit was held the following year in Garfield Park.

Four bronze statues by Leonard Crunelle, shown in this exhibit, were later placed in the rose garden at a cost of \$4,000. These have been illustrated in PARK AND CEMETERY.



PERENNIAL GARDEN, HUMBOLDT PARK, CHICAGO.

THE HALIFAX PUBLIC GARDENS

The Public Gardens of Halifax, N. S., have become known throughout Canada as among the finest public grounds in the country. Superintendent Richard Power, who has developed and improved the Halifax gardens, has been highly honored in Halifax for the fine appearance of the plantings, which have been under his care for forty years.

The garden comprises sixteen acres and is inclosed with a high iron fence with gates at the four corners. Inside the fence and about twenty feet distant from it there is a wide promenade extending around the grounds with a row of stately elms on either side, and another promenade extends lengthwise through the center of the grounds. Between the fence and the promenade at intervals there are planted shrubs of various kinds. In the center of the garden there is an irregular lake, covering about two acres, with a house for water fowl. The overflow from this lake is carried to another small lake which has been developed into a very pretty lily pond, and over the creek between the lakes are constructed two handsome concrete bridges.

The Queen's Fountain is situated at the western end of the garden and overflows into a raised iron basin. In the eastern end is the Soldier's Fountain, erected on a handsome rockery which gives an impressive effect. The fountain overflows into a small pond in which are growing lilies, ferns and fancy grass. South of the large lake is a band stand and around it are erected several small statues. At



LAKE, PUBLIC GARDENS, HALIFAX, N. S.



LAWN VIEW IN PUBLIC GARDENS, HALIFAX, N. S.

intervals through the park Mr. Power has taken full advantage of the provis-

ions of nature to construct several very pretty rockeries.

BEST TREES FOR RAILWAY PARKS

Read by J. K. Wingert, Gardener, C. V. R. R. Co., before the Railway Gardening Association.

For park and tree planting we have a large list to draw from. I will only name a few of the best streets and parks.

The Norway Maple (*Acer Plantanoides*) is one of the most beautiful trees that we have for street or park planting, is one of the most hardy trees that we have; free from fungous or insect enemies, has tough and strong wood, is seldom broken by storms, forms a handsome, wide branching head, and has beautiful dark green foliage.

Another of this species is the Sugar Maple. (*A. saccharum*.) No better tree can be used for park or street planting; its growth is straight and forms a symmetrical top. It is well adapted for planting near buildings. Being deep rooted, grass will do well up to its very trunk. It has the most handsome autumn colored foliage, shading from yellow to scarlet, as the season advances, and it will thrive well in most all conditions, except in boggy ground.

(*A. Plantanoides Purpureau*) Purple maple. This is a handsome tree with leaves of a bright purplish and crimson

color changing to green as the leaves get older.

No list would be complete without including the far famed American Elm (*Ulmus Americana*), particularly for wide avenues and large parks. This species grows to a large size, with high spreading tops. I do not think there is anything more desirable than the charm and grace of this tree. It will adapt itself to a greater variety of soil than any tree that is known, but it is a gross feeder, and it will be found somewhat difficult to make other trees and shrubs do well near it.

The English Elm (*Ulmus Campestris*) while not such a graceful tree as the American species, is a valuable tree for streets and parks, as it will do well in most any soil. It bears hard usage well, and holds its beautiful green foliage until late in the autumn. It is columnar in growth and suitable for streets of medium width.

The Pink Oak (*Quercus Palustris*) has recently gained great popularity. It is a magnificent tree and grows to a very large

size, quite pyramidal in its younger stages, grows very upright and foliage is deeply cut, in autumn turning gold and crimson shades and unsurpassed for fall coloring.

(*Betula Alba*) European White Birch is a very graceful tree and quite erect when young. After several years it assumes an elegant drooping habit. It has silvery bark and slender branches, rendering it very beautiful. I think it is unsurpassed for winter effect.

(*Liriodendron Tulipifera*) Tulip Poplar is another tree that is worth mentioning. It is a rapid growing tree with clean, smooth trunk and spreading branches.

Oriental Plane (*Plantanus Orientals*). The Plane tree is among our tallest trees, grows rapidly, well proportioned and is hardy. It is seldom broken by storm or ice and remarkably free from attacks of insects and diseases. It is one of my favorite street or park trees. It does well in most all soils and withstands the smoky atmosphere of railway parks.

PLAN FOR A COMPLETE SMALL CITY PARK SYSTEM

The comprehensive plan for a city park and playground system for New London, Conn., recently prepared by John Nolen, the landscape architect of Cambridge,

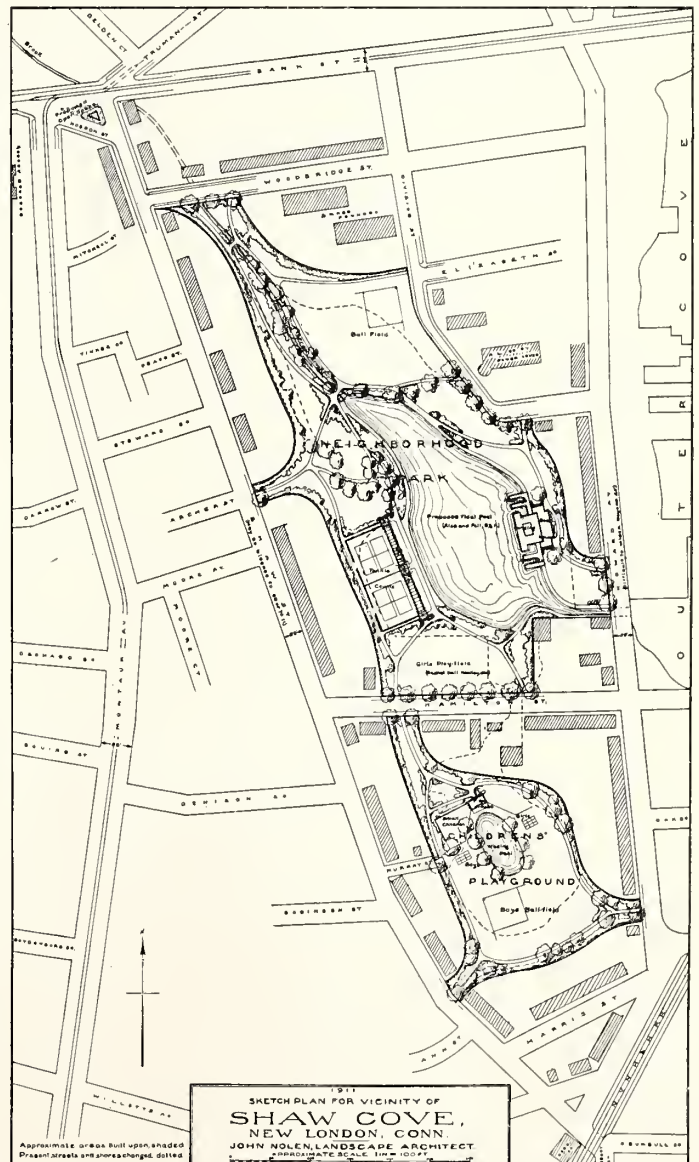
Mass., offers interesting study as a very careful and complete program of park development for the average small city.

The New London plan is, first of all,

important because it shows what a small city can do if action is taken in time. Mr. George S. Palmer, an unusually intelligent, generous and public-spirited citizen in New London, has promoted the park work there for a number of years and has at last succeeded in getting people to see the importance of this sort of development. The Legislature has authorized the city to issue bonds to the amount of \$100,000. It is further interesting to note that this work is not to end with paper plans. The board has already acquired the Bank street triangle, some of the property in the section known as Pates Woods, and is proceeding rapidly with other improvements. The campaign in New London began with the efforts of a young clergyman there and has grown in the course of two or three years into a really popular movement.

Mr. Nolen classifies the various branches of a complete park system as follows:

City Squares and Open Spaces;



School Grounds;
Playgrounds and Athletic Fields;
Neighborhood Parks;
Large Outlying Reservations;
The Inner and Outer Parkway System.

Each of these divisions is treated separately and in detail in the report and specific plans suggested for the development of every park area in the city.

The total length of the New London Outer Parkway System, as shown on the general plan, would be eight miles or more, and the width of the parkway itself should average at least 150 feet. In some locations it could easily exceed that width. Restrictions as to building should be passed by the City Council.

Taken together, the small open spaces, playgrounds, parks and parkway systems comprise a fairly complete provision of public grounds for the needs of the city of New London today and a reasonable antic-

ipation of the requirements of the immediate future, so far as they can now be foreseen. The Inner Parkway System would have a length of about six miles and an average width of at least 80 feet. In some places it could be 104 feet wide.

One of the most interesting details of the New London plan is the development of Shaw Cove. The conditions now obtaining in the vicinity of Shaw Cove make it very desirable to turn its low shores and mud flats into a neighborhood park and recreation center. The taking should include the entire shore line and also suitable entrances from near-by streets. As a suggestion for the development of this area, it is proposed that south of Hamilton street shall be the children's playground. The cove should be filled in, leaving a wading pool in the center only, with boys' and girls' apparatus, enclosed space with sand-

courts, etc., for small children, and a ball-field for boys. In the larger section north of Hamilton street the cove should be reduced in size and regraded, so that no flats will be exposed. The tidal wash and water from the small brook should then keep the basin clean. Small boats will have access to this pool from the outer cove, and may be given anchorage, as at present. Ultimately, it should prove desirable to establish a public landing and moorings with a boathouse on the bank. Shrubs and trees should be used, partly hiding the surrounding dwellings and furnishing shade on the knoll on the west side with its pleasant views over the park. More active recreation should be provided for by a ball-field, play-field for girls, and tennis courts. It may be feasible to keep out the tide in winter for skating. No roads are proposed for the park.

DRAPER'S TEN COMMANDMENTS on TREE PLANTING

(From *Pennsylvania Arbor Day Manual*.)

1. Do not allow roots to be exposed to the sun, drying winds or frost.
2. Prune with a clean, sharp knife any broken or injured roots.
3. Have the holes large enough to admit all the roots without cramping.
4. Plant in fine loam, enriched with thoroughly decomposed manure.

5. Do not allow any green unfermented manure to come in contact with the roots.
6. Spread out the roots in their natural position, and work fine loam among them, making it firm and compact.
7. Do not plant deep. Let the upper roots be set about an inch lower than before.

8. Remove all broken branches, and cut back at least one-half of the previous year's growth of wood.

9. If the season lacks unusual rainfall, water thoroughly twice a week.

10. After-culture. Keep soil in good degree of fertility. Mulching the trees in autumn with manure is beneficial.

PLANNING AND EQUIPPING A PLAYPARK

Sumner Field in Minneapolis is a tract of land three acres in extent, located in the center of a heavily populated district. This land, which is to be converted into a playground, is at the present time low and wet, and has been used for some time as a dumping field for all kinds of refuse.

It is proposed to fill in the whole area to a sufficient height above the adjacent sewers and to provide good drainage and to grade the field as shown on the attached plan.

The grounds are to be divided into three parts, one part, 200 feet wide by 300 feet long, to be used for outdoor sports, and two parts, each about 125 feet square, to be used for outdoor gymnasiums.

The shelter building (22x44 feet) is to be located on the axis of the main entrance, so as to be equally accessible from all three divisions. This building is to be a one-story building of concrete and tile, with a full basement, the ground floor to be used as a shelter in the summer and as a warming house for skaters in the winter. The basement is to contain the furnace, hot water heaters, toilets, shower baths and dressing rooms.

That part of the field to be used for outdoor sports will be approximately one foot lower than the other parts of the field, so

as to provide for a skating rink during the winter. The field will also have provisions for playground, baseball, tennis and volley ball during the spring and summer, and a football field for the late fall, and all bases and goal and net posts, although enclosed in concrete, will be built so as to be easily removed when necessary.

Directly in front of the building will be placed sand boxes, a giant stride and a merry-go-round, for the use of the smaller children.

To the west of the field house will be the men's outdoor gymnasium, provided with high and low swings and teeters, parallel bars, one horse and one buck, and one large gymnasium outfit. This outfit is equipped with rings, bars, inclined and vertical poles, ladders, and a large metal-lined slide.

To the east of the field house will be located the outdoor gymnasium for women and children. This will be provided with a Medart frame of rings and ropes and one of ladders and bars, high and low springs and teeters, one giant stride, one tether ball court and one small slide.

As the finished grades will be from five to ten feet lower than the adjacent house and street grades, the outside banks will be graded on a two to one slope and heav-

ily planted so as to make the entrances to the park well defined.

The plan also calls for planting of trees for shade around the gymnasium and building.

The estimated cost of equipping this playground is as follows:

3,200 cubic yards grading, at 30c. .	\$ 960.00
1,100 cubic yards loam surfacing, at \$1	1,100.00
1,000 cubic yards clay surfacing, at 80c	800.00
300 cubic yards gravel surfacing, at \$1	300.00
2,600 square yards seeding and fertilizing, at 5c	130.00
1 catch basin, at \$30	30.00
190 feet sewer, 8-inch, at 60c	114.00
320 square yards gravel walks, at 25c	80.00
450 feet steps, at 60c	270.00
270 square yards stone walk, lineal feet curb and gutter, at 80c	200.00
49 trees, at \$7	343.00
1,860 square yards shrub plantings	500.00
Playground apparatus	2,700.00
Shelter and comfort house	7,000.00
Well for drinking water	350.00
600 square yards sodding, at 25c	150.00
Engineering and contingencies	257.00
Total	\$15,500.00

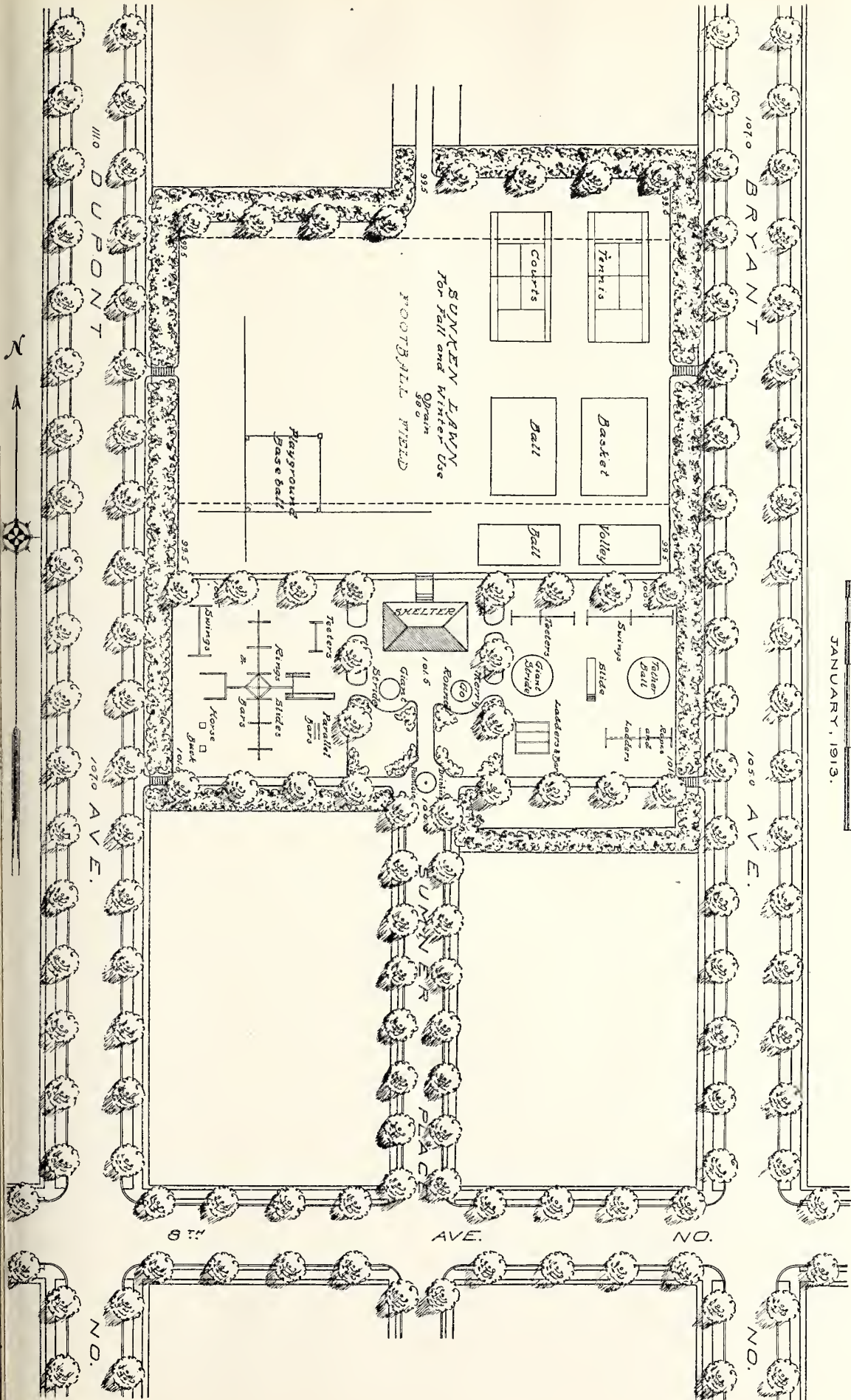
PLAN SHOWING THE PROPOSED ARRANGEMENT AND EQUIPMENT

SUMNER FIELD

BOARD OF PARK COMRS. MINNEAPOLIS, MINN.

Marshall, Supr. by D. C. Boyd-Eng'rs

1" = 20' SCALE
JANUARY, 1913.



ROAD and TRAIL BUILDING in the NATIONAL PARKS

*An address before the National Park Conference by
E. A. Keys, Inspector, Department of the Interior.*

It has been deemed unnecessary to enter into a general discussion of highway construction as generally applied to the state and county and the numerous problems that enter into the same, and indeed this would be impossible without the addition of complete specifications and detailed plans, but rather to confine the paper in a general way to the roads of the national parks without regard to the peculiar topographical and climatic conditions of any particular park.

In each of our national parks where the financial resources justify there should be an organization to handle the public work of the park, and where the revenues are insufficient to justify such an organization this class of work might be handled from the nearest park having such an organization; as, for example, if the financial resources of Crater Lake National Park did not justify such an organization, the organization from Yosemite National Park, with its equipment, might be temporarily diverted to Crater Lake National Park to make surveys for this park. In no case should a piece of work of any magnitude be allowed to proceed unsupervised by a man of technical knowledge. This, of course, should be under the direct supervision of the superintendent of the park. The engineering organization in each park should have a man of general experience who would be qualified not only to construct roads, but buildings, water-works, sewer systems, power plants, etc. (such a man can be found among the younger engineers).

Where the problems along the above lines are complicated, such as an extensive sewer system, the superintendent of the park should be allowed the services of a consulting engineer to assist in determining the best possible general sewer design. The report of the superintendent regarding this branch of the service, including plans and specifications for the various classes of work, should be submitted through a central office to the Secretary of the Interior, and this office should be in charge of a man of technical knowledge of such matters.

Before any work of magnitude is undertaken in any of the national parks for a system of roads a carefully prepared general plan should be worked out, and each piece of construction should be some unit of this general plan, so that when it is finally completed every unit will go to make up a system of highways which will be a credit to the Government. If there is only \$5,000 a year available in any particular year the small amount which this will construct should be some small unit of the general plan.

These carefully prepared surveys, with necessary profile and cross sections, would enable the engineers to submit through the superintendent of the park to the Secretary of the Interior a carefully prepared estimate of the cost of these roads, so that when the work should be undertaken at some future date the department would have at its command sufficient data to determine the probable cost of the undertaking in time to thoroughly discuss the matter and arrive at some definite conclusion before Congress is asked for an appropriation.

Before the work of actual construction is commenced proper plans and specifications should be prepared showing the cross section of the road, width, the amount of crown, depth of macadam, and all necessary data to proceed with the construction of the road. These plans and specifications should be standardized and approved by the Secretary of the Interior and be available to send out to the superintendent upon request for the same, and the plans should not be departed from without express authority from the department, except in so far as is necessary to meet peculiar local conditions. Some of the first features which present themselves to the superintendent starting at the beginning of a highway are what shall be the maximum allowable grade, the width and depth of the macadam, what height of crown, what available rock is best suited for the purpose at hand, what class of culverts shall be constructed—concrete, terra cotta, galvanized iron, masonry, or wood. With properly prepared plans and specifications these matters would be settled definitely for the superintendent, with the exception of applying the general plans and specifications to the peculiar local conditions to which each case must be adapted.

Departing from the title of this paper, but in connection with the above, I would say also that it would greatly facilitate matters for the superintendent if standard plans and specifications were prepared and adopted by the department for sewer construction—that is, standard manholes, standard flush tanks, and standard septic tanks should be adopted, and in all cases where a sewer system of any magnitude is to be installed the matter should be carefully considered and if necessary the department should not hesitate to employ for a limited time to assist the superintendent some of our well-known sanitary engineers, who should be consulted on the general and important matter of sewer disposal. In the case of our newer parks I believe it would be well to lay out in the beginning a general town-site plan where

there is likelihood of a town growing to some magnitude, then design the sewer system for this town and compel the buildings to conform to the town site and sewer system. This is a matter which is especially important in the national parks, where the work will be viewed by thousands of critical tourists, among whom will probably be some of the leading engineers, not only of this country but of other countries.

In connection with sewer disposal I desire to call attention to the but recently invented Emhof septic tank, which has been invented by one of the leading German scientists and which has been recently reviewed in the Engineering News and approved by no less an authority than Rudolph Herring, probably the ablest sanitary engineer in the United States.

Attention is called to this invention particularly for the reason that it is thought that it will be found applicable to sewerage disposal in some of our national parks. It appears that Mr. Herring made a trip to Europe, taking with him his assistants, and made a thorough test of this septic tank before writing the above-mentioned article.

In connection with the adoption of standard plans and specifications for the roads, one of the first problems which presents itself is determining the maximum allowable grade and at the same time reach the points of interest throughout the park. This is a subject which has a somewhat large range and what follows is with reference to maximum grades on broken stone roads. In Prussia the maximum grade in mountainous country is 5 per cent, in France the standard on national roads is not to exceed 3 per cent, departmental roads not to exceed 4 per cent, and on subordinate roads not to exceed 6 per cent. On the great Alpine road over the Simplon Pass, built under the direction of Napoleon Bonaparte, the grades average $4\frac{1}{2}$ per cent on the Italian side and 5.9 per cent on the Swiss side. In only one place does it become as steep as 7.7 per cent. In Great Britain the celebrated Holyhead road, built by Telford, the celebrated English engineer (from whom this class of road derives its name) through the very mountainous district in north Wales has an ordinary maximum grade of $3\frac{1}{4}$ per cent with one piece of 4.5 per cent and a very short piece of 5.9 per cent, on both of which pieces care was taken to make the surface smoother and harder than the remainder of the road.

In New York on the state aid roads the nominal maximum grade is 5 per cent, but grades of 6 per cent have been found

necessary in some places. In New Jersey are a number of state aid roads having grades of 7 and 8 per cent, and one of 10 per cent. The Massachusetts State Highway Commission, which has probably made more careful scientific search in road construction than any other state, has fixed no minimum grade, but it appears on some of their important roads the maximum grade is 7 per cent.

For mountainous roads where the bulk of the traffic is down grade the maximum grade is often 8 per cent, and sometimes as much as 12 per cent. Experience in heavy freighting shows that wagons can be controlled on 12 per cent grades, but cannot be satisfactorily controlled on steeper grades. I believe in the construction of roads in our national parks 10 per

cent grades should be the maximum, and this for a limited length.

A width of road for our national parks should be adopted which would not make them too expensive and at the same time would be wide enough not to endanger lives at the precipitous points. The width of travel way wide enough for necessary traffic is ordinarily overestimated. Two wagons having a width of wheel base of 5 feet and width of load of 9 feet can pass on a 16-foot roadbed and leave 6 inches between the outer wheels and the edge of the paved way and a clearance of 1 foot between the inner edges of the roads. An extreme case of this kind will rarely occur, hence a width of 16 feet should be sufficient unless there is considerable rapid traffic, and this is a feature

which we must sooner or later deal with, for I believe that we cannot long exclude the advent of rapid traffic in the form of automobiles from our national parks and that our future construction must be guided by this feature.

The Massachusetts Highway Commission carefully measured the width of travel way on numerous crushed-stone roads and found an improved width of from 15 to 24 feet, the average being 16 feet. The maximum width of the traveled roadway averaged 14.92 feet, and the width of numerous traveled roads averaged 11.5 feet. Upon this evidence the commission concluded that a width of 15 feet is ample, except in the vicinity of the larger towns.

(To be continued.)

PLANT SHIPMENT FROM AUSTRALIA

A collection of plants just received by the Missouri Botanical Garden from Australia is of more than usual interest. This includes four *Macrozamia Moorei*, two male and two female; two *Cycas media*, one male and one female; two *Macrozamia spiralis* (possibly *M. Miquelii*), one male and one female; six large, six medium, and twenty-four small plants of *Bowenia serrulata*; all of which were secured from the vicinity of Rockhampton, through the kindness of Professor R. Simmons, Curator of the Botanic Garden, Rockhampton, Queensland, Australia. The shipment was three months on the way, but the plants were so well packed (see illustration) that they not only suffered no injury, but in some cases continued to grow.

These plants belong to the family Cycadaceae, of which *Cycas revoluta*, the so-called "funeral," or "sago palm," is the best known example. Perhaps the most interesting the lot received is *Macrozamia Moorei*, a plant which is rarely found in botanical gardens and is rapidly being exterminated in the field because of a poison contained in the leaves, causing a paralysis of the cattle which eat it. At Springsure, the only known locality for *Macrozamia Moorei*, a notch is first chopped in the trunk of the plant and then a hole bored in the center. This is filled with arsenic, killing the cycad within a short time.

Macrosamia Moorci grows from ten to twenty feet in height and may be over two feet in diameter. A splendid crown of

leaves is produced, sometimes exceeding one hundred. The male and female cones are striking features of the plant, on account of their size and the unusual number which may be produced at one time. One hundred and three male cones in a single unbranched plant have been counted.

The particular point of interest, at least botanically, about *Macrozamia Moorci* is that it represents the nearest approach to the Bennettiales, a group of fossil, cycad-like plants existing in the mesozoic era. Never before has a living cycad been found which, because of its numerous lateral cones and their mode of occurrence, came so near to the conditions obtaining in these fossil forms, and it may truly be said that *Macrozamia Moorei* is the missing link so far as this particular group is concerned.



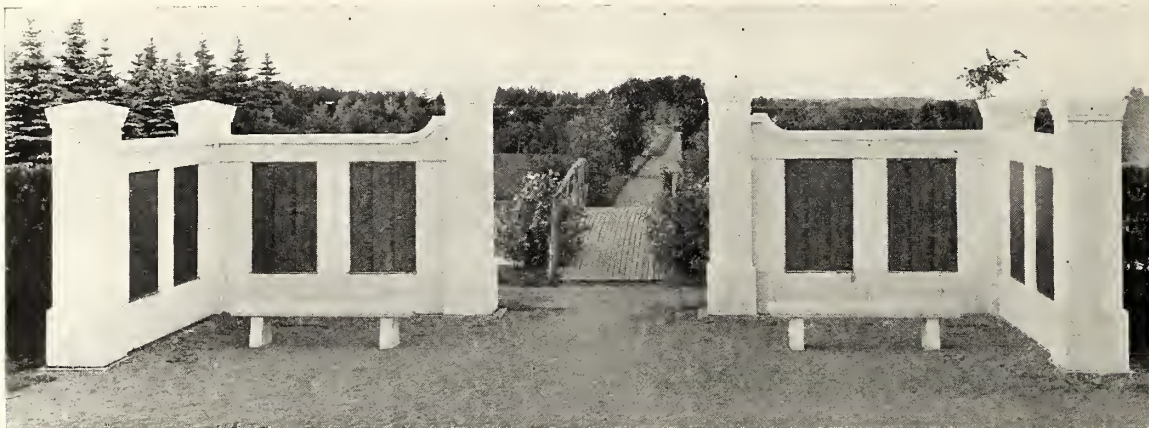
SHOWING METHOD OF PACKING PLANTS SHIPPED FROM AUSTRALIA.

INTERESTING PARK MEMORIAL GATEWAY

Newburyport, Mass., recently dedicated a very unusual and original form of soldiers' monument in the form of a memorial gateway that is one of the most

of nearly 1,500 soldiers, are from the foundry of the Woodland Bronze Works department of the Albert Russell & Sons Co. of Newburyport, also local contract-

AND CEMETERY. From this several replicas have been placed elsewhere. This statue, standing on a boulder in the center of a large circular plat, while admirably and ar-



MEMORIAL GATEWAY TO PARK AT NEWBURYPORT, MASS.

interesting and useful structures of this kind that has been executed in recent years.

The memorial stands on Atkinson Common and was dedicated June 17 to the memory of the soldiers and sailors of the civil war who enlisted from Newburyport. The design is by George P. Tilton, Newburyport. The monument itself is of Milford, N. H., white granite, erected by Daniel Canning & Son, prominent local builders. The twelve bronze tablets attached, carrying in $\frac{5}{8}$ -inch letters the names

ors. One of the tablets, containing a 15-inch head of Lincoln in bas relief and his Gettysburg speech, was donated by the A. W. Bartlett Grand Army Post, No. 49. The total cost of the entire work has been about \$4,000.

About eleven years ago the Memorial Association crowned a period of devoted effort by the erection at Atkinson Common of an heroic bronze statue by Theo Alice Ruggles Kitson, entitled "The Volunteer," which was illustrated in PARK

tistically portraying the ideal volunteer, had no place for the names of the men in whose memory it was erected, and to include this record and complete the work the memorial gateway was erected. It stands on an axis with the statue of the Volunteer and some 80 feet in its rear and opens the circular drive to a farther section of the park. The gate posts are set against walls having wings at right angles, which with the passage between spread 33 feet, with an extreme height of 8 feet 8 inches and 12 feet depth of angle.

TWO NEW PENNSYLVANIA CEMETERY LAWS

House Bill No. 1242 in the Pennsylvania legislature, providing that cemeteries be required to keep accurate record of interments, has been passed by both houses of the legislature, and has now received the Governor's signature. The bill reads as follows:

An Act requiring burial ground and cemetery companies or associations in the cities of the first class to record certain information relating to the burial of every person therein and providing a penalty.

Whereas, Owing to the loose and inefficient methods of listing and indexing now employed by many burial ground and cemetery companies and associations in the cities of the first class it has become exceedingly difficult and at times impossible to discover the location of certain graves or even to find a record of names of persons known to be buried therein, therefore.

Section 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met and it is hereby enacted by the authority of the same That every burial ground or cemetery company or association in the cities of the first class shall keep a complete list of the names of every person buried in such burial ground or cemetery arranged alphabetically with the date of burial, the exact location of the grave and the number and owner of the lot in which the grave is situated. This shall be accomplished by means of a card index or other system in such a way that knowledge of the name of a person or of the lot in which he or she is buried or of the date of burial will furnish a ready reference to the complete record.

Sec. 2. Within two years after the passage of

this act every burial ground or cemetery company or association in the cities of the first class shall have on file for [public] the inspection of all persons having an interest therein a complete record if such information is obtainable of all past burials made in such burial ground or cemetery arranged in conformity with the requirements of section one of this act.

Sec. 3. Every person, firm, or corporation violating any of the provisions of this act shall be guilty of a misdemeanor and upon conviction shall be sentenced to pay a fine not exceeding one [thousand] hundred dollars.

Senate Bill No. 1261 has also been passed and approved by the governor, and provides for the abandoning of unused cemeteries. It reads as follows:

An Act to authorize incorporated or unincorporated churches, cemeteries or burial associations owning burial grounds, located wholly or in part in any city, township or borough of this Commonwealth to purchase other grounds and to sell and convey in fee simple such portions of their land not used or conveyed by them for burial purposes or which may have been re-conveyed to them or shall have reverted or become acquired by them under the terms hereof or otherwise and providing for and authorizing the several courts of quarter sessions of the several counties of this Commonwealth upon petition of the managers, officers and other persons vested with the management of said burial ground to make orders and decrees for the removal of all bodies interred in such burial grounds or cemeteries belonging to any incorporated or unincorporated church cemetery, or burial association and to provide for the purchase of new lots, the cost of the removal of such bodies and compensation to the owners

of the lot or lots therein, the sale of the ground and disposition of the proceeds derived from such sale.

Section 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same, That whenever any incorporated or unincorporated church cemetery or burial association own [round] burial grounds wholly or in part in any city, township or borough in this Commonwealth and by reason of the growth thereof as well as for sanitary purposes it is deemed necessary or desirable in the opinion of the said church cemetery or burial association to change the location thereof, or if by reason of the opening of streets, roads or public passages around or through the same, a portion of the property has become angular and partly surrounded by improvements or, if by reason of the proximity of adjacent property the interment of the dead may in the interest of public health be prohibited in any part or parts of the ground belonging to any incorporated or unincorporated church cemetery or burial association aforesaid or from other causes any burial ground belonging to, or in charge of any incorporated or unincorporated church cemetery or burial association has ceased to be used for interments and has become so neglected as to become a public nuisance or that the remains of bodies interred in any such neglected or disused cemetery in any city, township or borough interfere with, and hinder the improvements, extensions and general progressive interest of any city, township or borough, it shall be lawful for such incorporated or unincorporated church cemetery or burial association and they are hereby authorized and empowered to purchase new and more suitable grounds in the vicinity of such city, township or borough of such extent and area as they shall deem expedient or to purchase lots or sections in other properly regulated burial ground or cemetery in the vicinity of

such city, township or borough for the burial of the dead and to purchase from the holders of lots in their own grounds the said lots whether interments have been made in them or not and provide for the reinterment of bodies that may be buried in any of the lots so purchased by them. And the board of managers, trustees or other officials in whom is vested the management of the affairs of such incorporated or unincorporated church cemetery or burial association are also hereby authorized and empowered to contract and agree with the owners of the lots in which interments have been made to remove from said lots the dead to such new locations upon such terms as may or can be mutually agreed upon. And in case any bodies have been interred in lots in such cemetery or cemeteries, and the owners of the lots in which the interments are made cannot after diligent search by the board of managers, trustees or other officials be found, such bodies may be removed by the aforesaid managing officials to lots in such grounds so purchased by said incorporated or unincorporated church cemetery or burial association, or to lots or sections in other properly regulated burial ground or cemetery in the vicinity of such city, township or borough, and interred therein, the expense of such removal and interment, enclosures and improvements to be borne by such incorporated or unincorporated church cemetery or burial association, and upon such removal being made the ground from which the bodies are so removed, shall be deemed and considered vacated for burial purposes and revert to and become the property of such incorporated or unincorporated church cemetery or burial association making such removal and be taken and considered the same as if said lot or lots had never been sold by the said church cemetery or burial association for the purpose of interment or any other purpose whatsoever. And in case the holders of lots in which no interments have been made cannot after diligent search by the managing officials above mentioned be found, then the managing officials may in their discretion assign to said owner parts of the ground so purchased, equal in value to the said lots, the owners of which cannot be found or assign to such owners lots of equal value into other properly regulated burial ground or cemetery in the vicinity of such city, township or borough or the said managing officials may set apart or hold in trust for the owners of said lots who cannot be found a sum of not less than the original price paid for said lots by the owner and shall hold and securely keep the said sum so set apart for the benefits of the said owners and pay to them whenever they may call for the same, and thereupon whenever lots of equal value shall have been set apart on the books of said incorporated or unincorporated church cemetery or burial association as having been assigned to said owners who cannot be found in the new and more suitable ground so purchased or in a properly regulated burial ground or cemetery in the vicinity of such city, township or borough or as soon as the said managing officials shall set apart a sum equal to the price paid for said lots the owners of which cannot be found for the benefit of said owners, then and in that case the lots heretofore held by said owners shall revert to and become the property of said incorporated or unincorporated church cemetery or burial association in whose ground the same are located as if the same had never been sold for the purpose of interment or any other purpose whatsoever and such incorporated or unincorporated church cemetery or burial association is hereby further authorized and empowered to sell and convey in fee simple and unrestricted as to use all such portions of their land not used or conveyed by them for burial purposes or which shall have been reconveyed to them or which have reverted to or become acquired by them as hereinbefore authorized and from which all bodies shall have been removed and to make, grant and deliver in the customary form a deed or deeds for the same to the purchaser or purchasers free, clear and discharged of any use, trust or limitation whatsoever.

Sec. 2. Whenever any incorporated or unincorporated church cemetery or burial association owns grounds wholly or in part in any city, township or borough in this Commonwealth and by reason of the growth thereof as well as for sanitary purposes it is deemed necessary or desirable in the opinion of the said church cemetery or burial association to change the location thereof, or if by reason of the opening of streets, roads or public passages around or through the same a portion of the property has become angular and partly surrounded by improvements and by reason of the proximity of adjacent property the interment of the dead may in the interest of public health be

prohibited in the ground belonging to any such church cemetery or burial association aforesaid or from other causes any burial ground belonging to or in charge of any such incorporated or unincorporated church cemetery or burial association has ceased to be used for interments and has become so neglected as to become a public nuisance or that the remains of bodies interred in any such neglected or disused cemetery in any city, township or borough interfere with and hinder the improvements, extension and general progressive interest of any city, township or borough then and in such case the courts of quarter sessions of the several counties of this Commonwealth upon petition of the managers, trustees or other officials in whom is vested the management of the affairs of such incorporated or unincorporated church cemetery or burial association setting forth that by reason of the growth of said city, township or borough it has been necessary to change the location thereof or that by reason of the proximity of adjacent property the interment of the dead in said cemetery or burial ground in the interest of public health has been prohibited or from other causes said burial ground has ceased to be used for interments and has become so neglected as to become a public nuisance or that the remains of bodies therein interfere with and hinder the improvements, extensions and general progressive interests of any such city, township or borough and the public good and after three weeks' advertisement of hearing in open court for the purpose, the said court is hereby vested and empowered with full power and authority after a full hearing of the parties therein proofs and allegations to authorize and direct the removal of the remains of all the dead from such cemetery or burial ground to such other suitable ground as said managers, trustees or officers may have procured in the vicinity of such city, township or borough for the reinterment of the bodies or to such lots or sections in a properly regulated burial ground or cemetery in the vicinity of such city, borough or township and to order and decree that the ground of such cemetery be forever vacated for burial purposes.

Sec. 3. After the removal of the bodies as provided for in section two, the said court of quarter sessions may upon petition of the said managers, trustees or other officers referred to in said section and upon being satisfied that the order of the court has been duly complied with authorize and empower the said managers, trustees or other officers in whom is vested the management of such incorporated or unincorporated church cemetery or burial association to sell said burial ground at a public or private sale either as a whole or divided into lots as they may deem most advisable and most likely to realize the most money and to make, execute and deliver to the purchaser or purchasers a deed or deeds therefore which deed or deeds shall vest in said purchaser or purchasers a perfect and indefeasible fee simple title, free and clear from all claims or interest of said incorporated or unincorporated church cemetery or burial association and of all owner or owners of lot or lots in said burial ground, the proceeds thereof being substituted in all respects for said ground.

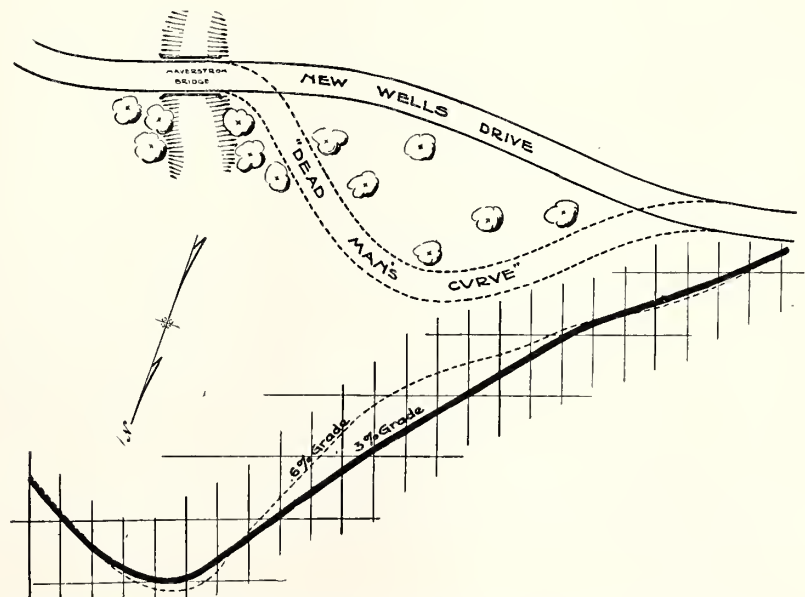
Sec. 4. The proceeds of such sale or sales shall be applied and distributed by said managers, trustees or other officers in whom is vested the management of such incorporated or unincorporated church cemetery or burial association as follows: (1) to the payment of the expenses of removing said bodies and the monuments or tombstones erected or maintained in such cemetery, including the purchase of new grounds or new lots in a properly regulated burial ground or cemetery in the vicinity of such city, township or borough (2) to the compensation or payment to lot owners in said burial ground in which no bodies have been interred and (3), the residue after defraying all necessary expenses incident to the removal of said bodies and interring the same in a careful manner, to be held in trust for lot owners who cannot be found after diligent search and for such other uses, objects and purposes as said incorporated or unincorporated church cemetery or burial association may order direct and appoint.

Sec. 5. That all acts or parts of acts inconsistent herewith and the same are hereby repealed.

REMODELING A DANGEROUS DRIVE CURVE

An interesting work in the remodeling of a curved drive to produce a roadway that was less dangerous to travel was recently accomplished in Forest Park, St.

increased safety and more durable construction of roads, in addition to an increase in beauty through the change in alignment. The old and the new alignment



REMODELING OF WELLS DRIVE, FOREST PARK, ST. LOUIS, TO ELIMINATE "DEAD MAN'S CURVE."

Louis. The dangerous "S" curve on Wells drive had gained the name of "Dead Man's Curve," and the way it was remodeled is a good example of securing in-

of this curve are illustrated in the accompanying diagram from the last annual report of the Park Commissioner of St. Louis.

OFFICIAL COMMUNICATIONS

JAMES B. SHEA, Boston, Mass., President



AND CONTRIBUTIONS

J. J. LEVISON, Brooklyn, N.Y., Sec.-Treas.

ASSOCIATION EMPLOYMENT BUREAU

Mr. Frank P. Gossard, of Kansas City, Mo., a member of this association and for the past eighteen years condemnation man and secretary of Kansas City, Mo., Park Board, is no longer in its employ and is now seeking a position with some park board. He is thoroughly competent to hold any office in a park system and can furnish the best of references from Kansas City and other large cities. Those who wish to correspond with Mr. Gossard will please address "Frank P. Gossard, 118 East 35th street, Kansas City, Mo."

THE DENVER CONVENTION

The American Association of Park Superintendents has completed arrangements for what promises to be the best convention in its history at Denver, August 25, 26 and 27.

The program is completed and the meeting at Denver promises to be one of the most interesting and valuable in the history of the organization. The meeting is to lay special emphasis on practical outdoor demonstrative work. It will be almost entirely devoted to real work outdoors, and every park man in the country, whether a member of the organization or not, is urged to be present.

Headquarters will be at the Brown Palace Hotel.

Following is the program:

MONDAY, AUGUST 25.

A. M.—Business meeting. Address of welcome by J. S. Macbeth, president of Park Board, and other city officials.

Noon—Lunch at City Park.

Afternoon, 1:30 P. M.—Outdoor meeting of association on lawn at City Park. Papers and discussions.

3:30 P. M.—Auto ride of portion of parks and parkways.

6:30 P. M.—Dinner, Montclair Civic building.

8 to 10 P. M.—Attend band concert, moving pictures, and electric fountain, City Park.

TUESDAY, AUGUST 26.

A. M.—Papers and discussion at headquarters. Lunch at headquarters.

1:30 P. M.—Auto ride to Washington Park, to attend outdoor meeting on lawn.

3:30 P. M.—Auto ride over city, inspecting parks and playgrounds.

7:30 P. M.—Auto ride to Elitch's Gar-

I should like a position as superintendent or assistant superintendent of parks. I have had twenty-seven years' experience in horticulture, landscape architecture and have had excellent success in planting parks and boulevards, making roads and lawns; am an expert in blue-prints and have had a wide experience with wild animals. For the last three years I have had the position as park superintendent of Virginia Minn., with best of references from city officials and citizens. Address A. A. Bushgold, Virginia, Minn.

dens, to attend performance of stock company.

WEDNESDAY, AUGUST 27.

8:30 A. M.—Take auto ride to Mountain parks.

Noon—Lunch on Genesee Mountain.

1:30 P. M.—Short papers and discussion.

2:30 P. M.—Trip back to Denver, via Bear Creek or Turkey Creek.

Note.—A question box will be placed at headquarters, where members of the association may ask questions that they would like to have discussed by the association.

Entertainment will be provided by the ladies during business meetings.

Following is a list of the speakers and the subjects to be treated in the addresses and discussion:

Paper on "Playground and Recreation Facilities and Their Management," by Edw. De Groot, general secretary, Playground Association of Chicago.

Lecture on "The New York Idea of a Zoological Park," by Herman W. Merkel, forester, New York Zoological Park. Illustrated with lantern slides.

Lecture on "The Care and Planting of Ornamental and Shade Trees," by J. J. Levison, M. F., forester, Brooklyn Park Department. Illustrated with lantern slides.

Informal discussion on "Municipal Nurseries," led by Messrs. Boddy and Alber, and on "Boulevard and Road Surfaces Suitable for Both Pleasure and Traffic," by Ralph R. Benedict.

"Field Demonstration of the Flora in the Vicinity of Denver," by Mr. John Berry.

DENVER'S PARK SYSTEM.

By Fred C. Steinhauer.

As the fifteenth annual convention of the American Association of Park Superintendents is to meet in Denver from August 25 to 27 of this year, a short description of our park system may be of interest to those who contemplate attending the convention, as well as to others interested in park affairs.

The Department of Parks of the City and County of Denver comes under the jurisdiction of the Commissioner of Property, Otto F. Thum, who has appointed five park commissioners, one from each of the four park districts, and the president, who is selected at large. The commission consists of the following:

John S. Macbeth, president; Thomas D.



NEW BERKELEY BATH HOUSE IN DENVER; COMPLETED JULY 1, 1913.



VIEW IN PLATT PARK, DENVER.

Long, Frederick S. Titsworth, Carl A. Johnson, E. W. Robinson, H. McNerney, secretary, and F. C. Steinhauer, general superintendent.

Denver, with 213,000 inhabitants (according to the last official census), situated at the foot of the Rockies, just one mile above sea level, has been rightly named the "Queen City of the Plains," being a city of beautiful homes, fine public buildings and numerous parks. Thirty years ago we had no parks, while today we can boast of thirty of these public "breathing places," comprising 1,240 acres, besides which we have ten playgrounds comprising a total of 23 acres, also many miles of parkways and boulevards, the city maintaining a total of 56 acres in parking along these drives.

In addition to the above, the Park Department has within the past year acquired over 1,000 acres in the mountains accessible to Denver, and within the next five years this acreage may increase to 30,000, as the city is now obtaining options on many thousand acres and the government has been requested to withhold from entry many sections of land that are desirable for mountain parks. First and foremost in the minds of those who fostered the plan of establishing these mountain parks was the idea of preserving the natural areas of pine and spruce in such close proximity to Denver, to the cool fastnesses of which her citizens could make frequent trips, enjoying a magnificent view all the way—the plains on one side, the mountains on the other—and with this in view, the Park Department is already engaged in making fine roads to these natural beauty spots.

Denver's largest park, exclusive of those in the mountains, is City Park, which comprises 400 acres. Here are located the greenhouses, zoo, children's playground, baseball, golf and polo grounds, tennis courts, the grandstand and track of the

Gentlemen's Driving Club, and the Carter Museum of Natural History. During the summer the city furnishes at City Park a band of thirty-five pieces, besides a vocalist, for each evening of the week and also for Saturday and Sunday afternoons. The electric fountain, located in the lake at City Park and one of its important features, is operated each evening and free moving pictures are shown. One or two magnificent fireworks displays each season are also provided at this park. The lake here is very popular for boating, and over a hundred boats are obtainable at a nominal fee. On Sundays, in addition to that furnished at City Park, music is provided at three other parks—Washington, Lincoln and Berkeley.

Beaches have been made and bath houses erected at Washington and Berkeley parks, and to those bringing suits the privileges

of bath house and beach are free, while to those who must rent a suit only the small fee of 10 or 15 cents is charged. On one day this summer as many as 3,000 availed themselves of the opportunity of bathing in Washington Park alone. From either of these beaches the snow-capped mountains are always visible.

Cheesman Park (80 acres) is our formal park, from which we have an unobstructed view of the mountain range from Pike's Peak to Long's Peak, a distance of over 100 miles. In two of the smaller parks branch public libraries have been erected at a cost of \$18,000 each.

The city of Denver in 1912 completed the purchase of a site for a civic center at a cost of approximately \$2,000,000 for property alone. In October, 1912, the Park Commission secured the services of Olmsted Brothers and Arnold W. Brunner, who have prepared plans for the improvement of this property. The preliminary grading is now under way, and when completed our civic center will compare favorably with other well-known civic centers.

The most noticeable feature to visitors in our parks is the decidedly green and fresh appearance of the grass. This is entirely due to the constant irrigation which is absolutely necessary to keep the grass alive in this dry climate, and which is our largest item of expense in the maintenance of the parks. Another fact which will be noted in our parks, and which is due to the dry atmosphere, is the limited variety of trees which really thrive well here.

The roadways and walks within our parks will at once attract the eye of the close observer of this feature of park development, for in place of the usual oiled, paved or macadam roadway and walks a thin coating of fine, clean sand makes for



PARK ROAD ON GENESEE MOUNTAIN, DENVER, UNDER CONSTRUCTION. SNOW CAPPED MOUNTAINS IN THE DISTANCE.

us a roadway unsurpassed, at a very low cost for its upkeep.

All park employees are easily distinguished by a uniform and numbered badge which they are required to wear.

BOULEVARDS AND PARKWAYS.

Denver has approximately ten miles of parkways, with center parking varying in width from 30 to 100 feet, and roadways and walks on either side. An automobile ride over these parkways and the connecting boulevards, terminating at Inspiration Point (a part of Berkeley Park), from which is revealed a most magnificent view of Clear Creek Valley and the mountains on one hand and of Denver and the plains on the other, is one ride our visitors must not miss.

PLAYGROUNDS.

In addition to the ten distinctive playgrounds already mentioned, all of the larger parks also have playground apparatus and numerous tennis courts. The playground apparatus used by this department is all constructed by our own employees, and consists of merry-go-rounds, outdoor gyms, swings, seesaws, parallel bars, slides, giant strides, baby swings, etc., all constructed of iron pipe and steel, with galvanized chains in place of ropes on swings, etc. Indoor baseball grounds, volley ball and basket ball courts are also provided. Thirty trained supervisors are employed during the season to look after the children's welfare.

It is, of course, possible in an article like

this only to outline the principal features of our park system and to give a few figures. We feel a pardonable pride in Denver's parks and know that those who make the trip to the convention will see much to interest them and will note some individual features that are not to be found in most other park systems of the country.

Following is a statistical summary of the park property in the city and county of Denver:

EAST DENVER PARK DISTRICT.		
PARKS.		
City	Acres	398.87
City Park Esplanade.....	8.00	
Cheesman	80.12	
Park Nursery	19.16	
Fuller	2.30	
Curtis	2.44	
Dunham	2.44	
Block 161, South Division of Capitol Hill	3.51	
Block 10, Park Club Place.....	1.27	
Civic Center (Purchased)	8.91	
PLAYGROUNDS.		
Block 41, Keener's Subdivision ...	2.34	
Block 56 and 57, Case & Ebert's Add.	4.84	
Block 8, Cheesman & Moffat's Add.	2.29	
Block 9, J. Cook Jr.'s N. Div. of Cap. Hill	2.29	
Block 154, Stiles' Add.	2.19	
Block 31, E. ½ of 26, Riverside Add.	1.03	
Block 3, Part of 25, Arlington Park	3.26	
Block 8, Arlington Park Annex..	1.30	
BOULEVARDS.		
Speer Boulevard (Triangles).....	0.55	
Forty-sixth Avenue		
Park Avenue (Triangles).....	2.40	
Colorado Boulevard		
Thirty-second Avenue		
PARKWAYS.		
Seventh Avenue		
Williams Street		
SOUTH DENVER PARK DISTRICT.		
PARKS.		
Washington Park	165.00	
Lincoln	12.85	
Observatory	4.13	
Platt	3.67	
Dailey	2.77	

Broadway Highlands	3.66
Sunken Gardens	12.86
PLAYGROUNDS.	
Jerome	3.31
BOULEVARDS.	
Kentucky Avenue	
PARKWAYS.	
Downing and Marion Streets.....	2.46
HIGHLAND PARK DISTRICT.	
PARKS.	
Highland	Acres 7.03
Jefferson	6.73
Chaffee	2.44
Argo	3.82
John McDonough	3.66
Barnum	6.09
Berkeley, 151.27 A. Inspiration Pt., 21.07 A	172.34
Rocky Mountain Lake.....	56.73
Sloan and Cooper Lake.....	160.41
PLAYGROUNDS.	
North Side	2.29
BOULEVARDS.	
Lake Place (Triangles)	0.20
Boulevard F (Trees)	
MONTCLAIR PARK DISTRICT.	
PARKS.	
Park in J. Cook Jr.'s N. Div. of Cap Hill	5.07
Park in College Hill.....	19.00
Park in Eastern Cap. Hill Sub.....	19.25
Montclair	2.07
BOULEVARDS	
Montview Boulevard	
Syracuse Street	
Colorado Boulevard	
Thirty-second Avenue	
Monaco Street	
PARKWAYS.	
Seventeenth Avenue	15.72
Forest Street	2.49
Monaco Street	12.87
Richthofen Place	0.94
Sixth Avenue	19.08
Clermont Street	2.54
Third Avenue	
Note—Acreage from Curb to Lot Line not included.	
RECAPITULATION.	
Park District Parkways Parks Playgrounds	
East Denver	527.02 17.25
South Denver	2.46 204.94 3.31
Montclair	53.64 45.39
Highland	416.56 2.29
Grand Total	56.10 Ac. 1238.91 Ac. 22.80 Ac.

A. A. C. S. AT BUFFALO, SEPTEMBER 17 TO 19

To the Members of the Association of American Cemetery Superintendents.

Time for the Buffalo convention is fast approaching. At the Milwaukee convention the identification badges seemed to give satisfaction. In order to prepare these in time, please write a postal card saying you are coming to the convention. Do this as soon as you get the PARK AND CEMETERY.

Do not put it off.

Trusting to see you at the Buffalo convention, I am,

Yours very respectfully,

BELLETT LAWSON, JR.,

River Grove, Ill.

Secy.-Treas.

Program for the Twenty-seventh Convention of the Association of American Cemetery Superintendents, to be Held in Buffalo, N. Y., September 17, 18 and 19, 1913.

WEDNESDAY, SEPTEMBER 17.

Meeting called to order at 9:30 a. m., at Hotel Statler.

Mayor's address of welcome.

President Turner's address.

Report of the secretary-treasurer.

Reception of new members.

Appointment of committees.

Half hour with the secretary.

AFTERNOON SESSION, 2 o'CLOCK.

Report of Committee on Community Mausoleums.

Discussion of report.

Paper: "Cemetery Accounting," by A. W. Hobert, secretary-superintendent of Lakeview Cemetery, Minneapolis, Minn.

Discussion.

Question box.

THURSDAY, SEPTEMBER 18.

Delegates to assemble at place arranged by the Convention Committee for automobile ride through city, taking in the following points: Forest Lawn, Elmlawn and Pine Ridge cemeteries, public mausoleum, Delaware Park, South Park and Conservatory. At Forest Lawn a session will be held with the following:

Paper by Prof. J. F. Cowell, of Botanical Garden; title not yet given.

Discussions and question box.

EVENING SESSION.

Hotel Statler, 8 o'Clock.

Paper: "Cemetery Roads," by Mathew P. Brazill, superintendent Calvary Cemetery, St. Louis, Mo.

Discussion.

Paper: "Rejuvenation of an Old Lawn," by F. D. Willis, secretary-superintendent Oakland Cemetery, St. Paul, Minn.

Discussions and question box.

Nomination of officers.

FRIDAY, SEPTEMBER 19.

Trip to Niagara Falls, going part way by boat and balance by trolley, taking in Gorge

Route and stopping at Victoria Park for luncheon. A session will be held in this park with the following program:

Paper by Mr. Hobert; title not yet given.

Discussion and question box.

Election of officers.

Reports of committees.

Unfinished business.

Adjournment.

The Convention Committee is composed as follows:

F. W. Werick, "Ridge Lawn," Buffalo.

Jno. W. Keller, "Mt. Hope," Rochester.

F. Sheard, "Riverside," Rochester.

Headquarters will be at the Hotel Statler, where the following rates are in force:

One room with tub and shower bath, for one person, \$2.50 to \$4.50 per day.

One room with tub and shower bath, for two persons, \$4 to \$6 per day.

One room with tub and shower bath, for two persons, twin beds, \$5 to \$7 per day.

One room with shower bath, for one person, \$2 per day.

One room with shower bath, for two persons, \$3 per day.

One room with shower bath, for two persons, twin beds, \$4 per day.

Two connecting rooms with two baths, for two persons, \$5 to \$10 per day.

Two connecting rooms with two baths, for four persons, \$8 to \$12 per day.

ASKED AND ANSWERED

An exchange of experience on practical matters by our readers. You are invited to contribute questions and answers to this department

Best Types of Lot Markers.

I should like to know of the experience of cemetery officials as to lot markers which have given most satisfaction. I wish to purchase.—E. K., Ky.

Would you recommend the use of common terra cotta markers for lot markers? Are they glazed enough at \$2 for 100 extra price?—R. R. C., Wis.

Regarding terra cotta lot markers, we tried terra cotta markers, but found them unsatisfactory, as they chipped badly and in many cases the whole top came off. We now use concrete markers of four kinds and make them ourselves. We use clean river sand—screenings and Portland cement for the body of the marker. For the top of the marker we use granite dust to give a hard surface. These markers are made in the following sizes:

6x6x18 inches plain to mark the corners of lots and are set flush with the ground and square with lines; 6x6x18 inches, marked with section and lot number, set diamond shaped in the center of the lot front; 4x4x15 inches, marked with the number of the grave to correspond with our platted records, and used to mark level graves on private lots; 4 inches round by 15 inches long, set at foot of all graves in single grave section.

We make the first three kinds in wooden collapsible boxes and the round one in a

I have had some experience with the terra cotta markers, both glazed and unglazed, and so far cannot see any difference. If there is any, it is in favor of the glazed marker. Some few years ago I took some old three-inch iron pipes and filled them with concrete, smoothed off the top and made a hole in the same, and found they worked very satisfactorily as a temporary marker. It is the custom here in Philadelphia among lawn plan cemeteries, when the lot is sold, to replace these markers with a granite post set flush with the ground. GEO. M. PAINTER,

Sec. and Supt., Westminster Cem.
Philadelphia, Pa.

I am using terra cotta markers for single graves, but don't consider them large enough for lot markers. We have some of our lot marked with three-inch cement markers, but they are too small; it is hard to find them in snowy weather. For the

last three years we have used a Lawson six-inch diameter outfit and prefer it to anything tried so far. Besides making a very nice post, you can use your men in idle times to good advantage on the work.

LEROY CHRISTIE,

Supt. Ottumwa Cemetery.

Ottumwa, Ia.

We have used three different kinds at Lakewood: first, granite, then iron, and finally cement. Both the granite and the iron were very satisfactory, but too expensive; the concrete is equally as satisfactory, and the expense very much less, being about seven cents per post. We have never had any experience with the terra cotta and are, therefore, not in a position to pass an opinion on same.

ARTHUR W. HOBERT,

Supt. Lakewood Cemetery.

Minneapolis.

We like best the concrete posts made in the forms of Bellett Lawson, Jr.

E. G. CARTER,

Chicago.

Supt. Oak Woods.



Park Commissioner Dwight F. Davis, of St. Louis, has devised a scheme through which he may be able to do much of the work planned for the next fiscal year, despite the decrease of \$292,740 which the Municipal Assembly made in his appropriation following its failure to pass the \$2.25 tax rate bill. Mr. Davis will submit to the City Council soon a bill to make the department the recipient of all funds collected from boating and refreshment concessions in parks and playgrounds and the amounts derived from the sale of soap and towels in public bath houses. Heretofore these sums have gone into the municipal revenue.

Charles M. Loring, of Minneapolis, widely known as "father of the Minneapolis park system," has offered to plant an avenue of elms to extend from the city limits on Lake street to Lake Minnetonka, a distance estimated at about fifteen miles. Mr. Loring's offer was received by the Board of County Commissioners and was referred to the Roads and Bridges Committee for immediate action. Mr. Loring asks nothing of the county except permission to plant the trees and that the county surveyor place stakes along both sides of the road to designate where the trees are to go.

The semi-annual meeting of the Arboricultural Association of Southern California will be held in the Board of Trade rooms, West Colorado street, Pasadena, September 5 and 6 next. This association is com-

posed of those interested in city beautification, and Jacob Allerecht, superintendent of parks in Pasadena, is chairman of the Executive Committee.

The first annual meeting of "Friends of Our Native Landscape" was held Saturday, June 14, 1913, in Ogle County, Ill., in the only virgin pine forest in Illinois. A special train ran from Chicago to the grounds, where interesting exercises were held. A "masque" by Kenneth Sawyer Goodman, a symbolic dedication of this forest to our "Friends," and an Indian campfire were features. Sherman M. Booth, Borland building, Chicago, is secretary of the new organization.

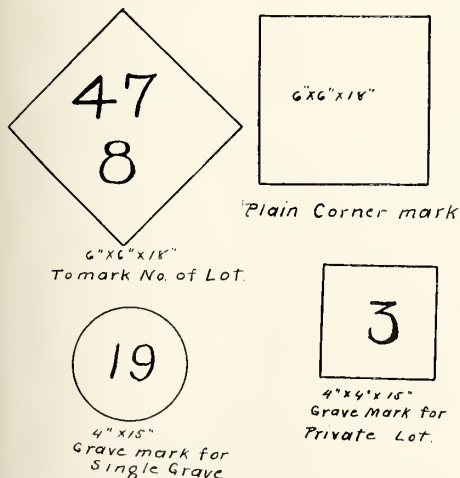
Improvements and Additions.

Plans are being drawn for a shelter house to be erected at Taylor Park, Freeport, Ill., to accommodate about 3,000 people.

The Mattoon Township Park Board, Mattoon, Ill., has ordered a set of swings, a set of trapeeze bars and flying rings, a giant stride, two sets of see-saws and a shoot the chutes for the North Park, and a like order of playground apparatus for West Side Park.

The Springfield, Ill., Park Board, through its superintendent, J. Francis Macpherson, has made experiments with various dust-laying devices and has finally decided to use the Solvay process calcium chloride on the park roads.

Secretary L. Edgar Orendorf, of the



MARKERS USED IN CAVE HILL CEMETERY.

patent mould, and our foundation department crew do this work during bad weather. We find these markers cheap and durable and entirely satisfactory. The method of manufacture is simple and can be used by any cemetery with profit, as it utilizes labor during inclement weather.

I enclose sketches of the four kinds of markers used in Cave Hill.

ROBT. CAMPBELL,

Supt. Cave Hill Cemetery.

Louisville, Ky.

Dayton, O., Park Board, has been instructed to advertise for bidders for the construction of 2,500 feet of wire fence at the McCabe Park, for which it is designed to use cement posts. Inasmuch as there are twenty-two different kinds of trees in Cooper Park, the board is discussing the plan of placing labels on them.

Jones Park, on the Caseyville road in East St. Louis, Ill., will be converted into a playground, recreation park, athletic field and bathing beach, if the plans of the Board of Park Commissioners, tentatively agreed upon, are carried out.

The Gulfport Council, St. Petersburg, Fla., has adopted plans for the beautification of the city and building of a system of parks. Park reservations were made on both sides of the right of way of the St. Petersburg and Gulf Street Car Co.'s tracks when the survey was made for the line.

The Building and Grounds Committee of the City Council of Galesburg, Ill., will erect a pavilion in City Park. Plans for the improvement of the park also call for the construction of a dam across the water of the creek flowing through the park.

The Woman's Club of Urbana-Champaign, Ill., has raised \$600 for playgrounds.

Plans for the embellishment of Lanigan Park that lies west of Louisiana street, between Elk and Fulton streets, Buffalo, N. Y., were recently made, and Fleming & Townsend, landscape architects, have been employed to do this work.

John Nolen, of Cambridge, Mass., has been retained by the city of Schenectady, N. Y., to prepare detail drawings and plans for the proposed river front improvement and Cotton Factory Hollow park districts. These two sections of the city will be given first consideration by the park commissioners and will probably be the first lands purchased by the city.

Eckland & DeArment, architects, with offices in Moline and Rockford, Ill., have just completed plans for a new pavilion and recreation hall ordered by the Rockford Park Board.

The Boulevard and Park Association of Quincy, Ill., has decided to accept the proposition of the Adams County Board of Supervisors and raise \$1,500 to be expended for the improvement of Locust street, Twenty-fourth street and Harrison boulevard drives.

Landscape Architects Kerrick & Shurd, of Terre Haute, Ind., have submitted plans for the laying out of Oak Park, in Brazil, Ind.

M. T. Marston, Kansas state landscape gardener and architect, who has charge of the landscape work and gardens at the state penitentiary and other state institutions, will plan improvements for the state fair grounds. By permission of the State Penal Board, the hothouses and beds at the state prison greenhouse have been turned over to Mr. Marston for starting seeds and

cuttings to be used on the state fair grounds at Hutchinson.

The Public Improvement Committee of the City Council of Sterling, Ill., has been instructed to proceed with the erection of a fountain in Lincoln Park.

The park commissioners of Pekin, Ill., have decided to have plans drawn for a new bath house, but the building will not be erected until next year.

The Marshalltown, Ia., City Council has closed a contract for the purchase of a six-acre addition to the City Park.

Plans are rapidly being completed for the improvement of Meridian Park, a ten-acre tract lying between Fifteenth and Sixteenth streets and Euclid street and Florida avenue Northwest, Washington, D. C. This land was purchased with an appropriation of \$450,000 and has been fully cleared for improvement.

Improvements aggregating several thousands of dollars have been outlined by the Board of Park Trustees of Peoria, Ill. The improvements are to be scattered in all of the four largest parks and constitute needed additions to the present equipment. A field-rest house at Bradley Park, an extensive system of ornamental cement walks around the palm house at Glen Oak Park, the improvement of the recently purchased six-acre tract of land at Madison Park, and the building of a driveway into South Park are the principal improvements.

Sixty thousand dollars has been appropriated by the Council of Gary, Ind., for use by the Board of Park Trustees in carrying out its plan of creating a city park system.

A plan involving the complete transfiguration of the landscape on the north bank of the Spokane River, Spokane, Wash., and its beautification as a great city park, was brought before the City Council by the special committee comprising Commissioner of Public Works Z. E. Hayden, Park Superintendent John W. Duncan and City Engineer Morton Macartney.

From the Park Reports.

The Park Commission of Fitchburg, Mass., in its illustrated report recently issued, states that the policy started last year of combining the work of the superintendent of moth work and forest warden with this office has been carried out this year and has worked very successfully. The expense of maintaining the office has been divided equally between the departments and such supplies as could be used by both have also been divided proportionately. Under this system it has been easily possible to maintain a force of about ten men practically the entire year. During the past summer there has been a force of six men at work caring for the parks and playgrounds. Interesting reports of Ralph W. Fish, supervisor of playgrounds, and Forest Warden W. W. Colton are also included.

The nineteenth annual report of the Park Commission of New Bedford, Mass., gives the following statistics of the year's work under Superintendent Thomas W. Cook: Appropriation by the City Council, \$50,000. The expenditures this year amounted to \$48,517.24, leaving a balance of \$1,482.76. Of this amount \$26,554.02 was paid for labor and \$21,963.22 for materials in the maintenance of the parks. The maintenance work of the past year, in addition to the general care of the parks, has included the completion of the ponds at Brooklawn Park which were commenced last year.

The report of the commissioners of Fairmount Park, Philadelphia, gives interesting details of the work in this great pleasure ground. It includes a summary of the principal matters connected with the development of the six outlying parks in addition to Fairmount Park and Hunting Park. Fairmount Park has grown during its existence of forty-four years from an area of 2,240 acres to one of 3,448 acres, embracing within its limits nearly 43 miles of drives, 44 miles of foot-paths and 12 miles of bridle-paths. The initial tract of 43 acres, added to the original 44 acres of Hunting Park, the 48 acres in Burholme Park, the 338 acres in Cobb's Creek Park, 20 acres in Morris Park, 532 acres in Pennypack Park, 44 acres in Wister's Woods and 24 acres in Fisher Park, makes a total of 1,049 acres in outlying parks placed under the commissioners' care by ordinance during the last eight years. Thomas S. Martin is secretary of the commission, and Jesse T. Vogdes chief engineer.

PERSONAL MENTION.

Marion C. Brents, formerly a market gardener, has been appointed park custodian by the new Board of Park Commissioners of Taylorville, Ill.

Charles W. Campbell, city engineer of St. Joseph, Mo., has resigned as the engineer for the Park Board, in which capacity he has been acting about three months.

William Turner, gardener and horticulturist, for the past twelve years head gardener for the late B. H. Borden, of Oceanic, N. J., and for seven years head gardener to William Rockefeller, Rockwood Hall, Tarrytown, has secured through Landscape Architect John T. Withers, of Jersey City, the position as general overseer on the estates of Frederick Cromwell and Seymour L. Cromwell at Bernardsville, N. J. Mr. Turner has been very successful in fruit growing under glass.

At the recent sitting of the Legislature of Vermont the city of Barre had its charter amended so as to create a Parks Commission. At a meeting of the aldermen of Barre they appointed City Engineer George Reed, Fire Chief Gladding and Superintendent of Cemeteries Hanton, with Mr. Hanton as secretary, to be the Park Commissioners.

CANADIAN CEMETERY ASSOCIATION

At a recent meeting of the Executive Committee of the Association of Cemetery Officials of Canada it was decided to hold the annual convention on Tuesday and Wednesday, August 26 and 27, 1913, in the city of Hamilton, Ont.

The program which has been arranged will consist of addresses by some of the members of the association, members of the American Association of Cemetery Superintendents, and a question box.

The question box is to provide the members of the association with an opportunity of obtaining information on any subjects which might be of interest or importance in their work, and you are requested to forward to the secretary at least one week be-

fore the convention the question or questions that are at present of special interest to you in your work.

In view of the great importance of the work of the association to every person interested in cemetery management, it is earnestly requested that you will make a special effort to be present.

Any superintendent, secretary or any official or member of a board of management of a cemetery is eligible for membership.

The welfare of the association, and equally your own welfare, depends on your attendance. WILLIAM H SAUNDERS,

Secretary-Treasurer.

"Necropolis," Toronto, Ont.



E. Haertel, the monument dealer at Fairmont, Minn., has made a recent successful fight against the community mausoleum in his town that opens up a new legal weapon against the tenement vault promoters that might perhaps be used in other states where laws are in force similar to those that govern cemeteries in Minnesota. Mr. Haertel brought injunction proceedings as a lot holder in the cemetery and the action is brought against the Fairmont Cemetery Association and the Fairmont Mausoleum Association and the individuals comprising each. Mr. Haertel alleges that the cemetery association has not the right to convey any land to the mausoleum association for the purpose of building a community mausoleum thereon; that the erection of such a building would be of great damage to him and other lot owners in Lakeside Cemetery; that the Fairmont Mausoleum Association is a loosely constructed and irresponsible body; that mausoleum interment is not such a disposition of the bodies of the dead as is permitted by law.

The main contention of Mr. Haertel was that the cemetery association has no right under the state law or its charter to dispose of any portion of the property of the cemetery other than for burial purposes; that a mausoleum does not furnish burial in the accepted sense; that there are now but ten unsold lots platted; that more lots must be platted in the very near future and the proposed mausoleum would take the best portion of the grounds yet to be platted. They also contend that no Fairmont Mausoleum association has been organized and that the real defendants and promoters are the people known as the Iowa Mausoleum Association of Waterloo.

Judge Nelson, of Slayton, has granted the injunction, and the immediate effect

of the proceedings is to temporarily stop all work on the building. All of the excavating for the foundations has already been done.

A decree for the sale at public auction of the land and other assets of the Lorraine Cemetery Co. of Baltimore was signed June 3 by Judge Rose in the United States District Court. The decree was signed upon the petition of Howard Bryant, William B. Smith and Samuel S. Field, trustees in bankruptcy of the company, who were also appointed trustees to make the sale.

Plans to transform Rose Hill Cemetery into an Italian garden, advanced by Superintendent of Parks David Campbell, of Syracuse, N. Y., for beautifying the neglected burial grounds, are likely to meet with opposition on the part of some of the lot owners. It is doubtful if the \$3,000 appropriated would be sufficient to carry out successfully the suggestion, but it is being considered by the Park Commission, which recently was given jurisdiction over the cemetery. The cemetery is on the hillside and so situated that Superintendent Campbell believes a large part of it could be terraced and paths could be laid out in such a way as not to seriously disarrange the burial plots.

Mayor Franz and the City Council of Freeport, Ill., propose to close up the city cemetery and allow no more burials there excepting by those now owning unoccupied lots. It is the mayor's idea to build a fence around the place, plant evergreen trees along the border and have a night watchman, if necessary. The lots are all sold and it is said that there is a confusion as to the location of quite a number of bodies.

The Muncie, Ind., *Press* recently had an unusually fine descriptive write-up of Beech Grove Cemetery that paid high tribute to

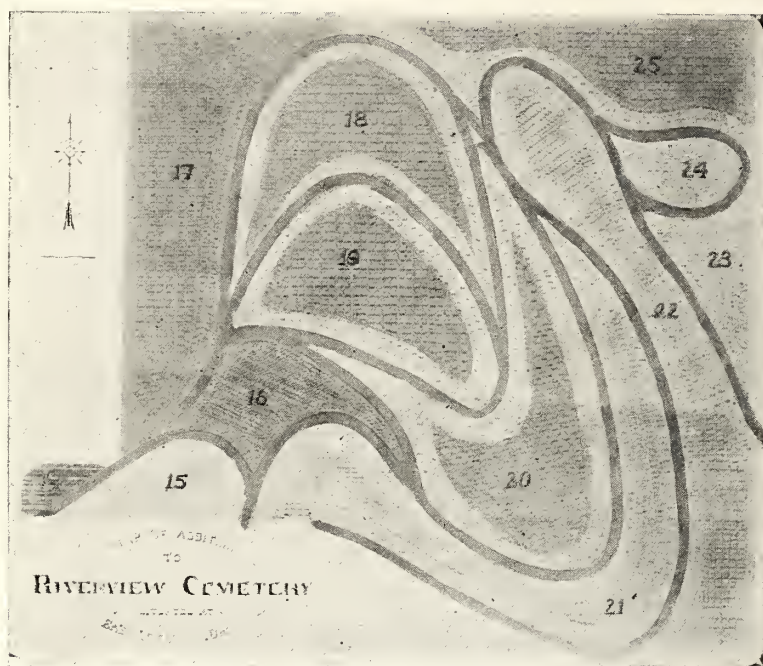
Superintendent O. W. Crabbs. We quote as follows from it: "In Mr. Crabbs the board found a most efficient man, as he has for the past fourteen years devoted his time and thought in transforming an unkempt burying ground, overgrown with shrubbery and vegetation, with no business methods of interment, leaving little to mark the spot of the last resting place, into an artistic nature garden, showing a combination of ideals and hard work, rather than science. Much new ground has been added to the cemetery plot and at the present time there is 105 acres, with 40 acres unplatted. Of the latter there will be two new sections platted this fall. Of the ground known as the new part of the cemetery, the entire outlay has been the idea of Mr. Crabbs carried out in detail. The beautiful avenues which wind round and round from a central plat are shaded on either side with well trimmed and various species of foliated trees, the few unsightly places are hidden with shrubbery and plant growth. Everywhere nature has something to tell about the beauty of her application. It is all the result of the psychological instinct of one nature rather than of practical horticulture, for nearly every tree, shrub, blade of grass and flower has been painted by Mr. Crabbs. They are artificial, yet they have a bit of wildness in their profusion and abandon of natural growth, such as one would not expect to find in a cemetery. Added to the beauty of the landscape are two small lagoons. These are fed by fountains of fresh water piped from the city and are made attractive by being surrounded by plant life, and it seems, even in these has Mr. Crabbs found the secret of adaptation. This lesson is exemplified by the growth of cat tails, water lilies and willows, and a touch of artistic nature was added when a number of ducks were seen to swim across the water. Everywhere are benches and shady nooks, and not a few people, attracted by the general scene, go there to rest."

Leroy Christie, superintendent of Ottumwa Cemetery, Ottumwa, Ia., sends an interesting collection of little snapshots taken during the spring flowering season, showing the unusually beautiful effects secured on his grounds by effective planting of flowering trees and shrubs. The views show an abundance of flowers and foliage, and the cemetery has been blessed with plenty of rain this season, something that was lacking during the two previous years.

Improvements and Additions.

The Woodlawn Cemetery Association of Canandaigua, N. Y., has purchased a tract of land from the estate of the late W. H. Hubbell, which adjoins the cemetery on the north and will make a picturesque addition. The tract contains ten acres.

The plan for the development of the addition to Riverview Cemetery, East Liverpool, O., illustrated here, was prepared by the Wagner Park Nurseries of Sidney, O., who operate extensive nurseries and maintain a complete landscape department for planning, planting and developing park and cemetery grounds.



PLAN FOR 40-ACRE ADDITION TO AN OHIO CEMETERY.
Plan by Wagner Park Nurseries, Sidney, Ohio.

The Park Board and Cemetery Trustees of Holland, Mich., have about completed the preliminaries in sub-dividing the new East addition to the Pilgrim Home Cemetery, and soon the tract will be thrown open to the public for purchase.

The Orthodox Hebrew Congregation of Hazelton, Pa., will erect a stone wall fence along the front of their cemetery grounds.

Heber Springs, Ark., has appropriated \$250 which will be used in beautifying the city cemetery and erecting a stone fence around it.

Great improvement is being made in the Confederate burying ground at Alton, Ill., through the generosity of the government. The War Department sent Civil Engineer T. S. Rabbitt to Alton, who laid out plans for granitoid walks and steps and other work.

Eugene L. Davis has been given the contract from the ladies of the Civic League for the improving of the old Town House Hill Cemetery at Norwalk, Conn. This includes the looking after of the graves, the setting up of fallen stones and the remodeling of the old stone wall.

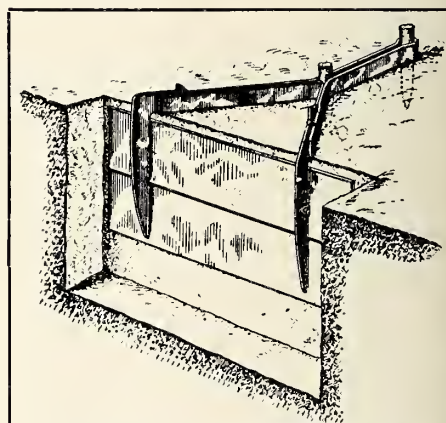
At a recent meeting of the plot holders of St. Stephen's Reformed Cemetery, Perkaskie, Pa., the members of the congregation decided to make improvements to the cemetery costing about \$1,000. The im-

provements are to consist of an iron fence with drive gates and arches, and the removal and trimming of trees.

Improvements in Mount Olivet Cemetery, Fort Worth, Tex., along lines suggested by B. L. Waggoman and W. C. Guthrie, cemetery association directors, who recently returned from an inspection trip to St.

ting it up badly, and in order to remedy this it was decided to pave it with brick.

Pine Grove Cemetery, Lynn, Mass., reports that the fight against the brown-tail moth and similar pests has been continued this year at a cost of only \$418.05. This is considerably less than in former years. Eleven odd lots have been placed under perpetual care during the year. There have been laid 1,551 feet of drain pipe in connection with which six large and thirteen small catch basins have been built. In addition to this work 3,582 linear feet of concrete gutter have been laid. Superintendent George E. Lane gives details of the finances of the year and statistics of the season's work.



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Is made entirely of iron, and will last a long time.



THE VISIBLE LOT MARKER

The Visible Lot Marker is made to stay visible. Following the angle of the concrete post, the growth of green is directed away from the center, and leaves the number of the lot always in view. Write to the designer and get special terms and prices on these two useful utilities.

A. H. HAVARD

1210 Stoughton St., Urbana, Illinois

Louis and Kansas City cemeteries, will be carried out at an early date. The improvements will cost \$6,000. A women's rest room of brick and cement with a green tile roof will be erected at a cost of \$1,000 on the hill near the south entrance. The office building, two keepers' cottages and two barns that formerly occupied this site have been removed south of the hill nearer the entrance and will be repainted. Several miles of driveways are to be constructed and many flowers and trees planted.

From the Cemetery Reports.

The annual report of the Woodlawn Cemetery Association, Winona, Minn., tells of the election of officers as follows: President, Hannibal Choate; vice-president, A. B. Youmans; secretary, A. C. Dixon; treasurer, S. L. Prentiss; superintendent, J. E. Thompson. The report of Secretary A. C. Dixon showed receipts for the past year of \$11,905.98, this including \$3,943.25 for the sale of lots, \$2,620.29 from interest, \$2,154.76 from the greenhouse, \$2,053.91 from labor and interments, \$278.80 from bills receivable and \$85 from pasturage. The driveway leading from the present entrance of the cemetery grounds to the point of its intersection with the old original road has always been difficult to keep in order, the steep incline at its southern end rendering it subject to the wash of heavy rains, cut-

Tarvia

*Preserves Roads
Prevents Dust~*



Washington Park, Milwaukee, Wis. Treated with "Tarvia A"

Tarvia for Walks

ALTHOUGH Tarvia is primarily intended for use in the construction of macadam roads, to give them a clean, tough, waterproof and automobile-proof surface, it also has a fine field of usefulness for side-walk construction.

It has been used for this purpose in great quantities in Bronx Park, New York City, and the parks of Milwaukee, Wis. For such purposes, the mixing method is usually employed, although it is perfectly possible to mix the Tarvia and stone in position.

A Tarvia walk has the advantage of being inexpensive, quick draining, free from cracks, easy to construct without skilled labor, and non-slippery under all conditions.

The following letter reflects the results of four years' use of Tarvia for this purpose:

Board of Park Commissioners
Milwaukee, Wis.

Nov. 20, 1912

During the past four years we have used about six carloads of "Tarvia A." This has been used exclusively for walk construction and for that purpose we consider it one of the best materials on the market.

Yours very truly,
(Signed) CHARLES G. CARPENTER
Superintendent.

Booklet free on request.

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ESTABLISHED 1890

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OUR COVER ILLUSTRATION.

On the front cover page of this issue of *PARK AND CEMETERY* we show a substantial and decorative design of iron fence that is very popular for public playgrounds. Space will not permit giving the detailed specifications of this fence, but playground superintendents and civic associations interested in playground improvements can get blue-prints and specifications by writing direct to The Stewart Iron Works Co., Cincinnati, O., who are prepared to furnish this design of fence as well as many other equally suitable designs.

We have in previous issues of *PARK AND CEMETERY* given special attention to playground study in the hope that it would be of interest and benefit to those who are taking up the playground movement in their community. It is very opportune to show a design of iron fence especially suitable for an enclosure, since it is evident that every playground should be "fenced in," not only to safeguard the children at play, but to bring the improvement up to the highest standard of civic pride.

The Stewart Iron Works Co. is giving special attention to designing appropriate iron fence to especially meet this condition. They have the experience, the technical knowledge and machinery necessary to produce this class of work on a large scale and to meet all conditions. The services of their engineering and drafting departments are at the command of those interested and contemplating the purchase of fence for playgrounds. Their wide and varied experience in drawing plans and specifications for fence for playgrounds enables them to make valuable suggestions in the selection of a suitable iron fence. It would be well for those interested to send for their catalog and ask for any additional information desired.

RAILWAY GARDENING ASSOCIATION.

Editor *PARK AND CEMETERY*: The seventh annual meeting of the Railway Gardening Association will be held in Nashville, Tenn., August 12 to 15, 1913. There will be plenty of interesting papers and talks on railroad landscape gardening. Headquarters will be established at the

Elms, Silver Maple, Catalpas and Carolina Poplars

We have a surplus of these trees, one of the finest stocks in the middle west and in the right size, too, up to 2 inches. Let us quote you on them.

A. B. AUSTIN NURSERY CO.

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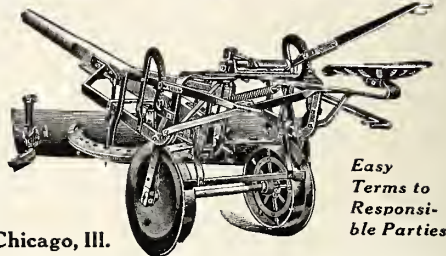
Grades and Levels Roads and Walks. Cleans Off Snow. Makes Ditches.

Levels land, clears gutters, makes terraces. Has many uses winter and summer in any park or cemetery. Saves Cost in Short Time. The

20th Century Grader

is made of best grade steel. Indestructible. Light enough for 2 horses—Guaranteed strong enough for four. One man operates it easily. Direct pull on load—No waste power. Many valuable exclusive features. Low cost. You need one. Write for catalogue.

BAKER MFG. CO., 583 Hunter Bldg., Chicago, Ill.



Easy
Terms to
Responsible
Parties.

IRIS, PHLOX, PEONY



A Field of Iris

HARDY HERBACEOUS PLANTS

PEONIES—3 to 5 eye division, splendid varieties for Parks and Cemeteries, 110 varieties.
PHLOX—Field-grown, 35 varieties; fine assortment of colors; some choice new varieties.
IRIS—German, 17 named choice varieties; Japan, 12 varieties; single and double.
YUCCA—Filamentosa, 3-year clumps.
Write in official capacity for Free Price List with Special Prices to Park and Cemetery Superintendents. Address the

FRANK H. WILD FLORAL CO.
SARCOXIE, MISSOURI



Guaranteed Under the Insecticide Act, 1910. Serial No. 321

Save your plants and trees. Just the thing for Greenhouse and outdoor use. Destroys Mealy Bug, Brown and White Scale, Thrip, Red Spider, Black and Green Fly, Mites, Ants, Insects on Rose Bushes, Carnations, etc., without injury to plants and without odor. Used according to directions our Standard Insecticide will prevent ravages on your crops by insects.

Non-poisonous and harmless to user and plant. Leading Seedsmen and Florists have used it with wonderful results.

Destroys Lice in Poultry Houses, Fleas on Dogs and all Domestic Pets. Excellent as a wash for dogs and other animals. Relieves mange.

Effective where others fail.

1/2 Pint . . . 25c; Pint . . . 40c; Quart . . . 75c
1/2 Gallon, \$1.25; Gallon, \$2.00; 5 Gal. Can, \$9.00
10 Gallon Can \$17.50

Dilute with water 30 to 50 parts

For Sale by Seedsmen and Florists' Supply Houses

If you cannot obtain this from your supply house write us direct

Lemon Oil Company Dept. U
420 W. Lexington Street, Baltimore, Md.
Directions on Every Package.



WHAT one cemetery superintendent

has done can be done by others. We have one agent who sold nearly one car of Red Granite aside from other materials, this spring.

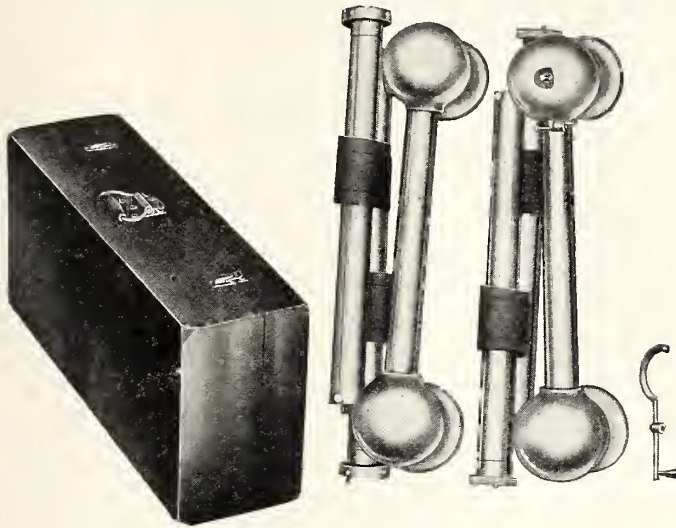
You are in a position to get the business, and why not, instead of helping others and getting practically nothing for your services?

Our terms are the most liberal ever offered agents in our line. Write for particulars. We have over 1,000 agents.

Moore Monument Co.

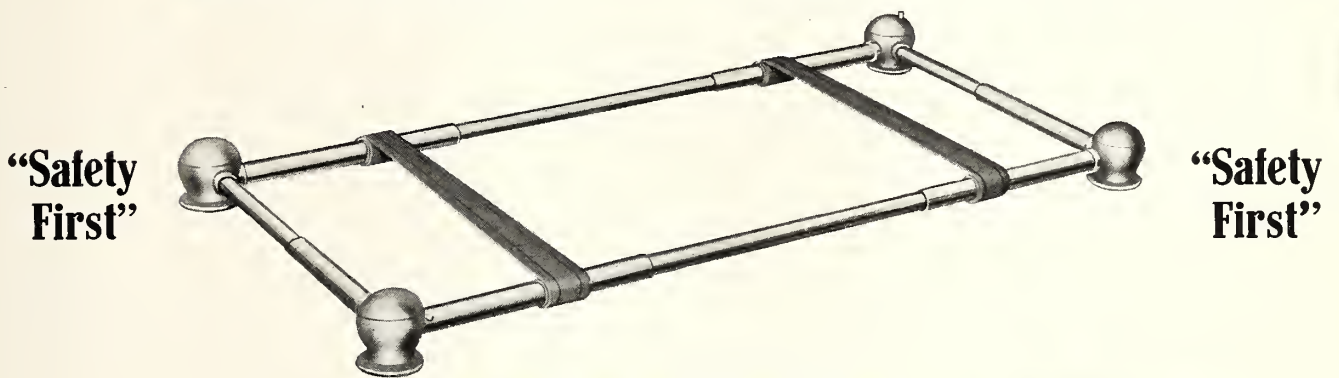
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Sterling, Ill.

FRIGID Automatic Safety Control Lowering and Raising Device



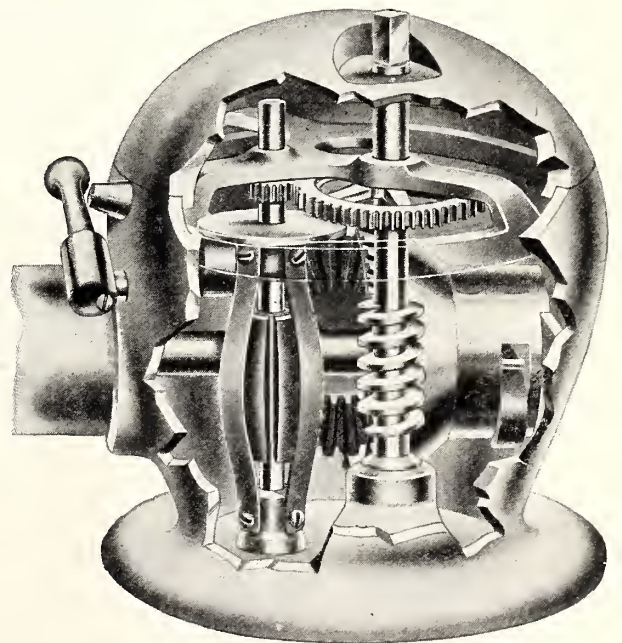
Undertaker's Model—Collapsible

FOR the first time in the history of lowering devices, we offer an automatic or self-controlled lowering device that can, by its peculiar construction, also be used as a raising device. The particular advantage of the FRIGID Automatic, however, lies in its perfect safety.



Cemetery Model—Rigid, Extensible Frame

"SAFETY FIRST" is vital. When with safety, you have dignity in the slow, even descent of the casket into the grave, you have simplicity of operation, ease of control, together with beauty in the design and richness of the finished device—then you surely have a device that helps to reach the ideal in cemetery funeral work.



The Automatic Control
Stops and Starts by Touching the Lever

Frigid Fluid Co.
Chicago :: Illinois

We Anticipate Exhibiting at the Buffalo Meeting of the Cemetery Superintendents' Association

Hotel Tulane. Rates on the American plan at the Tulane at \$2.50 per day can be secured by writing President C. H. Tritschler, 2716 Craft street, Nashville. We will have, besides the regular order of business, an old-fashioned Southern barbecue, a trip in special cars to the various parks, a trip to Andrew Jackson's home ("The Hermitage") in automobiles, and a trip to Lookout Mountain and Chattanooga.

W. F. HUTCHINSON.

Sewickley, Pa.

Secretary.

OBITUARY.

The playground movement of Orange, N. J., lost one of its best friends in the death of Mrs. Frederick W. Kelsey, July 4. Mrs. Kelsey's husband is well known as one of the original members of the Essex County Park Commission.



Blue Ribbon Lawn Grass Seed

For Every Soil, Climate
and Situation

BLUE RIBBON EVERGREEN—For northern and middle latitudes, the most satisfactory seed; adapted to various soils, and stands heat, drought and severe cold better than Kentucky Blue Grass or the mixture commonly offered.

SHADY GREEN LAWN GRASS—A special mixture for damp or shady situations, excellent reports from parks and cemeteries that have been successful with this seed in some very difficult situations.

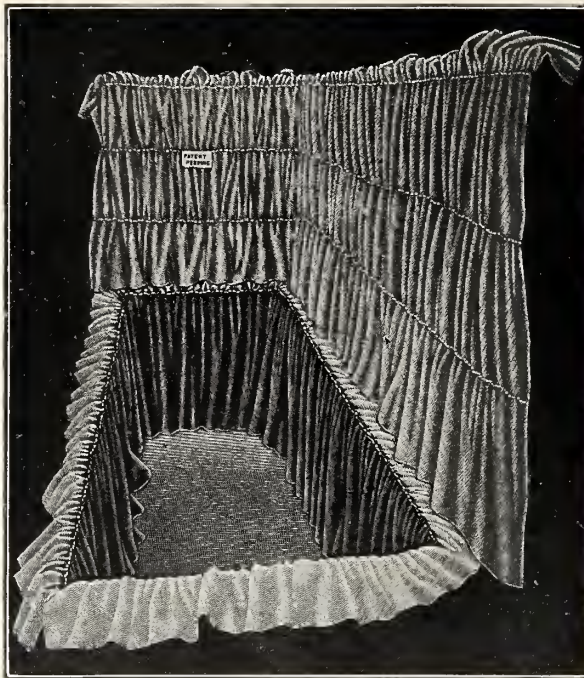
FANCY KENTUCKY BLUE GRASS—From the Blue Grass State—best for seeding large areas and pastures; this famous grass is well known in all sections; forms a very close, compact sod.

GET SPECIAL PRICES IN QUANTITIES TO PARKS and CEMETERIES and our booklet, "Success with Lawns," that solves many difficult lawn making problems.

Wood, Stubbs & Co.

Incorporated

219-221 East Jefferson Street
Louisville, Ky.



Grave Linings

colors and prices to suit everybody.

Grave Tents

made to order. Our olive green tents blend with nature and take away the fair ground appearance of the ordinary tent.

Dirt Covers

Our olive green duck dirt covers last four times as long as any oil cloth cover, and always look better.

Casket Linings

all styles and at reasonable prices. Green and grey crex for around the grave.

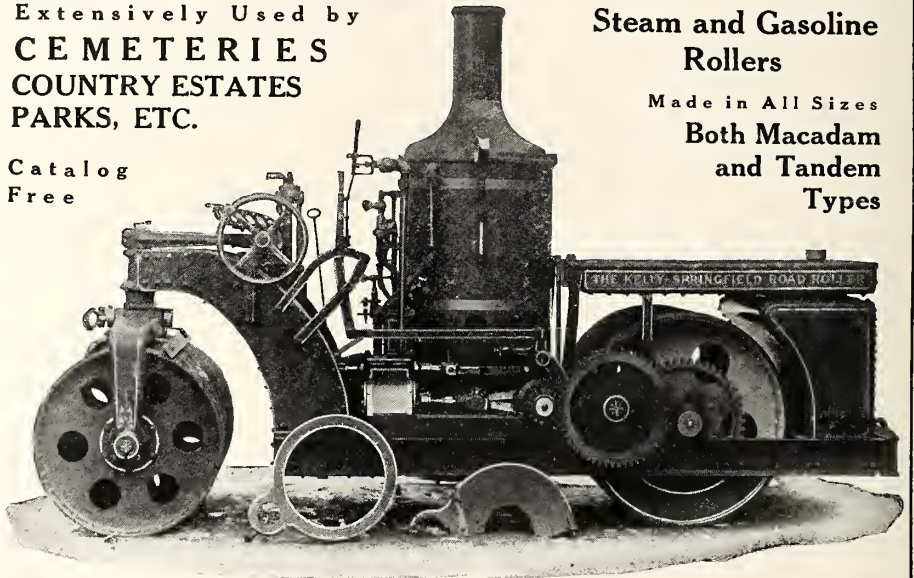
LOWERING DEVICES, CEMETERY TRUCKS, CASKET RACKS, and a full line of all undertakers' supplies.

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DECORATING CO.**

MILTON, IND.

Extensively Used by
CEMETERIES
COUNTRY ESTATES
PARKS, ETC.

Catalog
Free



**Steam and Gasoline
Rollers**

Made in All Sizes
Both Macadam
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Types

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FALL PLANTING

The September and October Fall Planting Issues of Park and Cemetery will be particularly valuable for advertisers of planting material to reach a wholesale market at minimum expense.

Advertising copy is due September 1st.

Park and Cemetery,

536 South Clark Street
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No One Knows

how much marble is buried in the Old World. Not long ago while excavations were in progress in Naples, the floor of a certain house on the Via Nanta Bofia crashed down into an unknown cellar. In clearing away the ruins they discovered another marvelous statue of Venus—a white marble figure which, it is claimed, represents the highest type of Grecian art.

The same heading may also be applied to the New World. No one knows how many marble memorials have been set up in our own country. It is vaguely understood that there are a good many of them, but the actual number has never been estimated.

One of the more recent additions is known as the Griffiths Monument—a sterling piece of White Rutland marble, conscientiously carved. The order for this work came from Bills Brothers, Denver, Col.

VERMONT MARBLE COMPANY **PROCTOR VERMONT**

BOSTON—NEW YORK—PHILADELPHIA—WASHINGTON
CLEVELAND—CHICAGO—ST. LOUIS—KANSAS CITY
SAN FRANCISCO—PORTLAND—TACOMA
VANCOUVER—B-C—PETERBOROUGH—ONT

PUBLICATIONS RECEIVED.

Report of Suggested Plan of Procedure for City Plan Commission, City of Jersey City, N. J., by E. G. Goodrich and George B. Ford; Addenda Memoranda to Report of Suggested Plan of Procedure for City Plan Commission, City of Jersey City, N. J., and Housing Report to the City Plan Commission of Newark, N.

Descriptive circular of elastic pruning paint from E. G. Mendenhall, Kimmundy, Ill.

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3 cents a word each insertion; minimum price 50 cents. Copy must reach us by the 1st of the month.

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No. 1. Canadian Unleached Hardwood Ashes, Nature's own Fertilizer for grass. No fertilizer equals my Ashes. Price and freight rates quoted, correspondence solicited. George Stevens, 104 Douro St., Peterboro, Ontario, Canada.

VINCA MINOR MYRTLE.

Strong field-grown plants, \$2.50 per 100 \$24.00 per 1,000.

E. K. Mooney
Madeira Nurseries, Madeira, O.

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Situation Wanted—A member of the American Association of Park Superintendents, who is superintendent of parks in a Metropolitan northern city wishes to change position on account of political interference with his work. Trained in horticulture, planning and development of parks; has done important work of park development, and is thoroughly familiar with park work of every character; can furnish highest references as to ability to take charge of large city park system. Address "Rocky Mountains," care Park and Cemetery.

Will be open to accept position about September first as Superintendent of large cemetery or park system. Man of thirty; married. Am a trained Landscape Designer, in all its branches, and have had valuable park and cemetery experience as Superintendent. No bad habits. Accustomed to handling of men. References on application.

Address "A B Z"

Care of Park and Cemetery

Experienced superintendent of modern cemetery desires an offer to enter a larger field. In present position 11 years. Progressive, married, temperate man of good address. Highest reference furnished. Knowledge of mapping, etc. Address, C. J. G., care Park and Cemetery.

Private party has money to invest in cemetery well located in a large city.

Address "J J," Park and Cemetery

Situation Wanted—By Landscape Gardener; capable foreman; ten years' experience in planting, general landscape work, laying out playgrounds, construction of roads, sewers, manholes, tennis courts, foundations, etc. First-class references. Address L. G., 810 Broad St., Newark, N. J.

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Made 3-inch, 3½-inch, 4-inch, and 5-inch diameters; 8, 10, and 12-inch lengths, and all kinds of top marks. Nearly white in color and practically everlasting. Made under Haase Concrete Wks. Patents No. 680,432 and 734,854 For circulars and prices, Address OAK PARK, ILL. Cemeteries West of Rockies Address, LEO. G. HAASE, Pasadena, California



WHITE GLAZED Terra-Cotta GRAVE AND LOT MARKERS



Durable as Granite

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Cheap as Wood

Write at once for Prices and Particulars

ALBRIGHT & LIGHTCAP CO., RAVENNA, OHIO

(Successors to M. B. Mishler and Mishler Bros.)

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HARE & HARE

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604 GUMBEL BUILDING

KANSAS CITY, MO.

FRANK H. NUTTER

Landscape Architect and Engineer

710 Sykes Bldg., Minneapolis, Minn.

Advice, Sketches, Designs or full Working Plans for Cemeteries, Parks, and Public or Home Grounds. Surveys made if required. Correspondence solicited. City Park Engineer from 1883 to 1906.

CHARLES W. LEAVITT, Jr.

Civil and Landscape Engineer

Town Planning, Parks, Cemeteries, Institutions, etc. Development of Estates, Real Estate Subdivision, Water Supply, Sewerage and Pavements.

220 Broadway,

New York

Elastic Pruning Paint

Saves Girdled Trees, Heals Cuts and Wounds, Prevents Decay, Stops Bleeding in Pruning, Cures Fungus Growth.

A Positive and Effectual Remedy for the Treatment of Fruit and shade Trees When Damaged

USE ANY TIME OF THE YEAR

Write for Prices and Catalog

Fruit Growers' Supply Depot. Best Tools of All Kinds, especially for Trimming Trees, etc. Best Harrows for Leveling Purposes

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Galvanized



THEY NEVER RUST

Also Made With ANNUAL OR SPECIAL CARE

Cast Iron Grave and Lot Marks

Marks for Numbering Graves, Lots and Sections

BERGER MFG. CO.

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Cincinnati, Ohio

ORLANDO T. CARPENTER

Civil and Landscape Engineer

VALHALLA :: NEW YORK

Cemetery work a specialty, of which I have had 23 years' experience.

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Landscape Architects and Engineers

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Wagner's Landscape Service OFFERS EVERYTHING FOR GARDEN BEAUTY AND PICTURESQUE LANDSCAPE EFFECTS

Why wait until the rush of planting to make drives, walks and prepare the soil. Write us; we can be of service to you. We will submit designs, complete planting plans and furnish estimates for Parks, Cemeteries, Public or Private Grounds, no matter where located. Terms most reasonable.

Do it now and save time and delay at planting time.

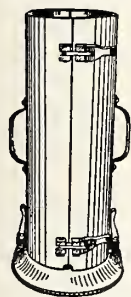
THE WAGNER PARK NURSERY CO.
Department B. :: **SIDNEY, OHIO**

WEEEDS are often undesirable in ponds, streams, rivers, lakes, etc. Please notice the simple and effective operation of the **Submarine Weed Cutting Saw** above. The weeds are cut at the roots and floating down stream. The device may be handled in lengths to a great extent from the banks, or just as well from boats on larger lakes. In use by many Parks and Cemeteries, and highly recommended here and abroad. Write for illustrated circular, references, etc.



Gold Medal, Belgium, 1909 Silver Medals, Austria, 1909; Pueblo, Col., 1910

ASCHERT BROS., Cedar Lake, West Bend, Wis.



WHY

buy expensive markers when you can make your own at a very low cost on the **LAWSON CEMENT MARKER OUTFIT?** No better marker can be found or made.

Write for Descriptive Circular and Price

Bellett Lawson, Jr.
Care **ELMWOOD CEMETERY**
River Grove, Ill.

Order Your Supplies

from firms that advertise in Park and Cemetery and give the paper credit for the introduction when you write.



CREMATORY AND CHAPEL

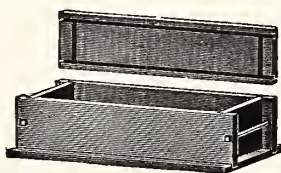
A Modern Crematory

as designed and built by us can be operated economically, expeditiously, and with entire absence of smoke. The building need have no features architecturally objectionable. We design, build, and equip crematories. Correspondence solicited.

JARVIS ENGINEERING CO.
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To Advertisers

who have anything to sell that is used in outdoor improvements in Parks and Cemeteries, the September and October Fall Planting Issues of Park and Cemetery, will open a valuable market. Copy is due September 1.



SLATE

For Interior of Mausoleums.
For Vaults of all kinds.
For Blackboards and Roofing.

STRUCTURAL SLATE OF ALL KINDS

Write us for quotations

Bangor Structural Slate Co., Trust Bldg. Bangor, Penna.

CANADA UNLEACHED HARD WOOD ASHES

Beautiful lawns may be had by use of pure unleached wood ashes. They are odorless, clean and cost less than any other fertilizer. Used in the principal parks and cemeteries. Send for price delivered.

GEO. L. MUNROE & SONS : Oswego, New York

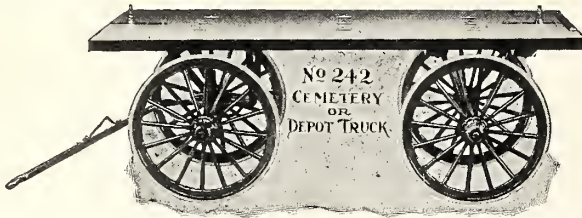
PLANTING CONTRACTS

We are among the largest growers of ornamental trees, shrubs and plants in America. Hardy varieties a specialty. We employ a competent landscape gardener for the service of our large patronage. Cemetery and Park Organizations are invited to correspond relative to either PLANNING or PLANTING, or both. We will be pleased to make estimates on any proposition.

THE JEWEL NURSERY COMPANY
Est. 1864. **Lake City, Minn.** 1200 Acres.



Durfee Grave Tents are made with detachable walls and provide protection against storm, wind or sun. We make 126 different sizes and qualities.



This carriage is a very useful and appropriate conveyance in cemeteries having suburban train service, also for conveying a body from hearse to train; has rubber tired wheels, and is finished in dark green with black trimmings.

Is the health
and comfort
of your
citizens
worth
considering
?

Write for detailed
description and prices



No. 1181

Durfee Grave Dirt Cover

Made in oval form, of green duck, 9 feet by 16 feet.



No. 1178

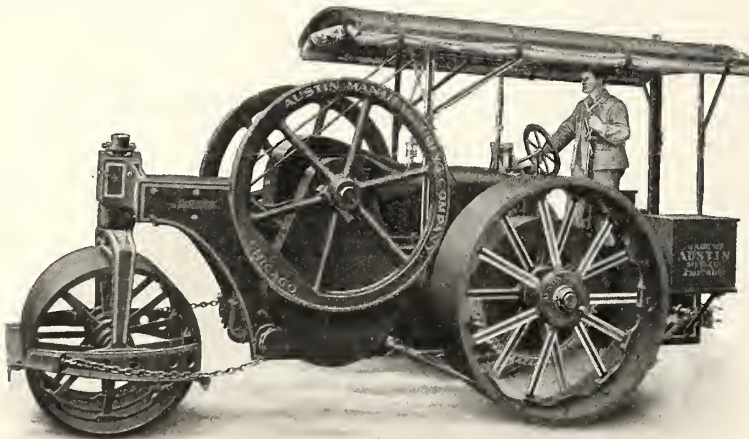
Durfee Grave Lining

will fit any grave, is a handsome design and has been engraved at a large expense. Our circular shows four other patterns.

DURFEE MANUFACTURING COMPANY, Grand Rapids, Mich.

The Austin Motor Road Roller

is used by hundreds of road builders in the United States and many foreign countries. The Russian Government has recently ordered six more Austin Rollers, bringing their total in use up to 24 Austin Motor Rollers.



The following prominent cemetery and park boards use Austin Rollers:

*Uniondale Cemetery, Pittsburg
Woodmere Cemetery, Detroit
Mt. Olivet Cemetery, Detroit
St. Adalbert's Cemetery, Chicago
Oakwoods Cemetery, Chicago
Spring Grove Cemetery, Ohio
New York City Parks Board
Chicago Park Commissioners
Minneapolis Park Board, etc., etc.*

Austin-Western line of Road Machinery is the most complete and most modern in design of all on the market.

The Austin-Western Road Machinery Co.
CHICAGO

New York City Dallas, Texas Durham, N. C. Syracuse, N. Y. Memphis, Tenn. San Francisco, Cal. St. Paul, Minn. Atlanta, Ga. Los Angeles, Cal.

Park and Cemetery and Landscape Gardening

\$2 a Year | Canada Foreign \$2.25

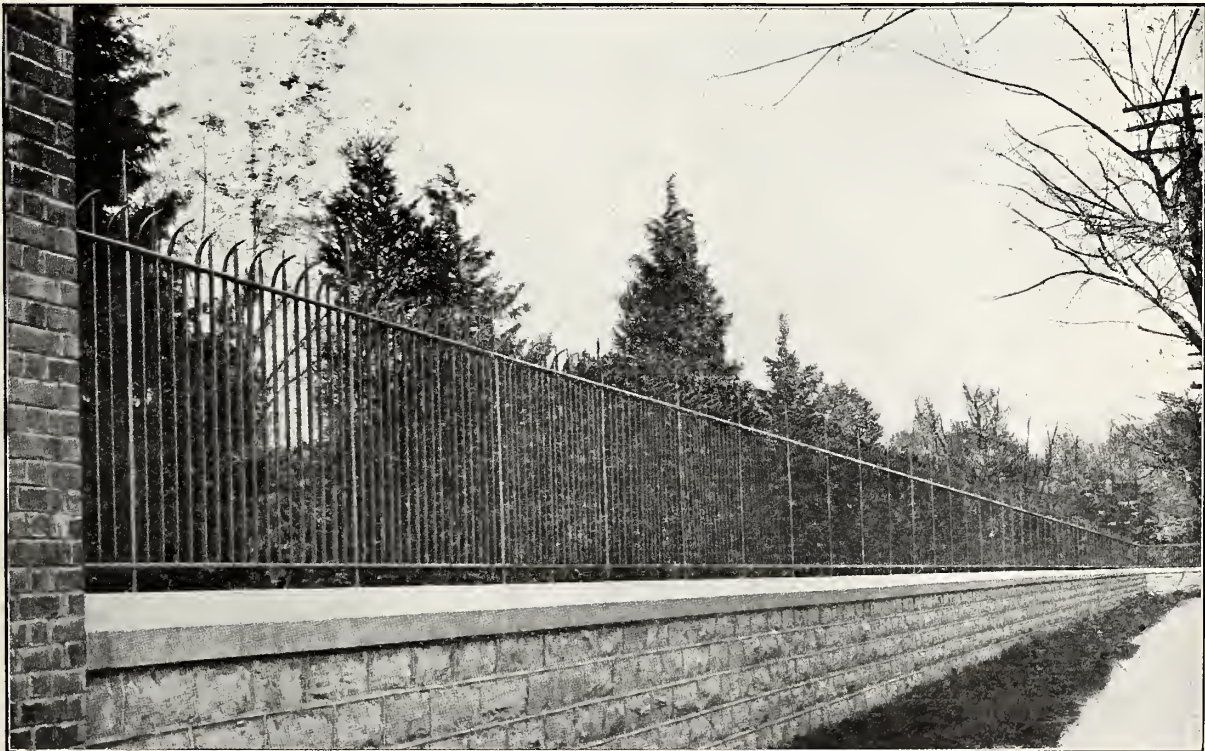
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Vol. XXIII., No. 7 SEPTEMBER, 1913

PLANTING AND PLANNING ISSUE

Denver Convention of Park Superintendents—Plan and Construction of Park Swimming Pools—Striking Effect in Poinsettias—Lawn Making in St. Louis—Principles of Landscape Design.



SPLENDID DESIGN OF IRON FENCE ESPECIALLY SUITABLE FOR ENCLOSING CEMETERIES, PUBLIC PARKS AND PLAYGROUNDS. See page XII.

Illustration furnished by courtesy of The Stewart Iron Works Co., Cincinnati, O.

W. & T. SMITH COMPANY

GENEVA, NEW YORK

SPECIMEN ORNAMENTAL TREES, SHRUBS, ROSES, EVERGREENS, VINES, HERBACEOUS PLANTS;
64 YEARS. IN SHORT, EVERYTHING. CATALOGUE AND ESTIMATES FURNISHED. 700 ACRES.

Hardy Shrubs for Landscape Planting

Desirable stock at low prices for clearance of leased land. Send for list

SHATEMUC NURSERIES

BARRYTOWN, DUCHESS COUNTY, NEW YORK

FOR Baled Spruce, Balsam and Hemlock Boughs, Hardy, Cut, Fancy and Dagger Ferns, Bouquet Green Laurel and Festooning in bulk,
ADDRESS

H. J. Smith, Hinsdale, Mass.

PEONIES

First class stock growing on new ground

J. F. ROSENFELD

Benson Post Office OMAHA, NEB.

Plant for Immediate Effect

Not for Future Generations

Start with the largest stock that can be secured! It takes over twenty years to grow such Trees and Shrubs as we offer.

We do the long waiting—thus enabling you to secure Trees and Shrubs that give immediate effect. Price List gives complete information.

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CHESTNUT HILL,
PHILADELPHIA, PA.

WM. WARNER HARPER, Proprietor

ORNAMENTAL TREES and SHRUBBERY

Write for Prices NOW on your requirements for the Fall

HIRAM T. JONES

Union County Nurseries

ELIZABETH

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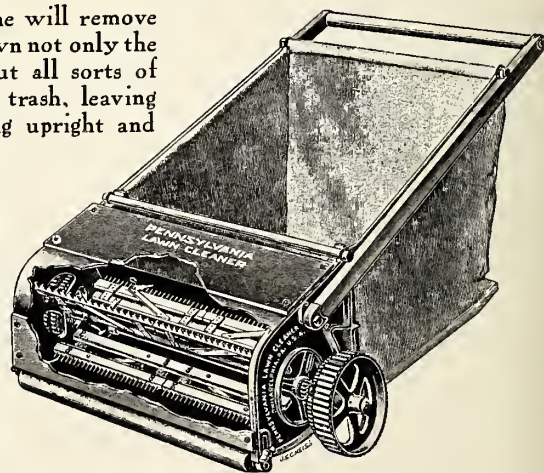
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PENNSYLVANIA
Quality

Lawn Cleaner and Rake



THIS machine will remove from the lawn not only the cut grass, but all sorts of litter, leaves and trash, leaving the grass standing upright and free from foreign matter that prevents the sunlight and dew from getting to the roots. This action of the three revolving 24-inch wire tooth rakes is beneficial to the turf, for it raises up the low growing crab grass and other spreading weeds,



allowing the lawn mower to cut the seed pods off before they ripen, thus preventing their reappearing the following year. As these weeds and grasses are annuals, it is only necessary to prevent their going to seed for a season to get rid of them, and this is most effectively accomplished by the use of the **Pennsylvania Lawn Cleaner and Rake**.

It is easy to operate, and with it one man will do more and better work than four men with hand rakes.

24-Inch Cleaning area, Shipping weight 80 lbs. . . List \$20.00
36 " " " " " " 126 " " " " " " 30.00

Discount On Application

"Will be glad to furnish one of these machines on trial to any Institution interested in reducing the cost of raking their lawns."

Supplee Hardware Company
PHILADELPHIA, PENNSYLVANIA



THE HEMPHILL MEMORIAL, OAK HILL CEMETERY, WASHINGTON, D. C.

The Old Latin Cross

has appeared in many different forms. In Egypt it was the custom to carve a heart at the end of the base. A cross of this kind placed on the front of an Egyptian house signified that only good people lived there. Sometimes it was still further modified by adding another bar to the cross. And in the early days of our own country, when the Spaniards set out to establish a new Spain, they found there amid the relics of prehistoric races certain symbols that closely resembled the old Latin cross.

The Hemphill Memorial sets forth the simple outlines of the Latin cross, lightened by a modest display of carved work. It belongs in our list of White Rutland Marble products. It was erected by M. J. Falvey, Washington, D. C.

VERMONT MARBLE COMPANY
PROCTOR VERMONT

BOSTON—NEW YORK—PHILADELPHIA—WASHINGTON
 CLEVELAND—CHICAGO—ST. LOUIS—KANSAS CITY
 SAN FRANCISCO—PORTLAND—TACOMA
 VANCOUVER—B-C—PETERBOROUGH—ONT



SHADE TREES

For Parks, Cemeteries and Boulevards

☞ Trees especially grown for this purpose. Straight trunks, good heads and well rooted.

ALSO

Shrubs and Evergreens

in a large assortment of varieties and sizes. Our catalogue for Fall, 1913, will be ready about September. Be sure you get a copy.

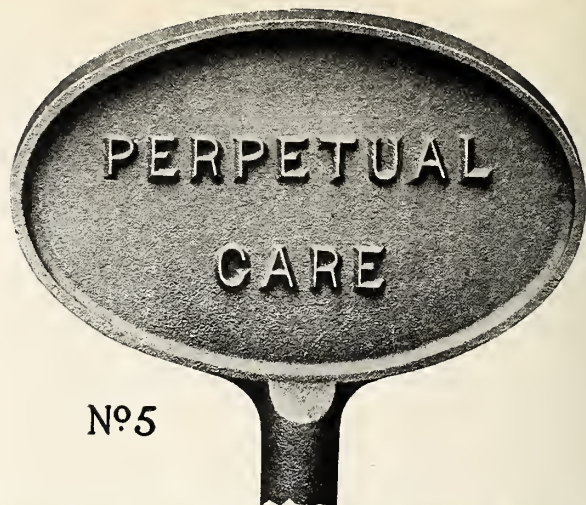
Thomas Meehan & Sons

WHOLESALE NURSERYMEN

Dresher

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Pennsylvania



No 5

Bronze Signs Beautify Your Lawn and Increase Perpetual Care Deposits

Don't Deface a Fine Lawn by Using Cheap, Unsightly Signs!

That rust, corrode or become weather-beaten from exposure. Bronze is the eternal, durable metal. It colors beautifully in the open air and harmonizes with the beauty of your landscape. Six different designs.

Our Bronze Perpetual Care Stakes are the Quality Markers for Beautiful Lawns

The above cut is our solid Bronze No. 5 head, and is one of our best patterns. It is used by a great many cemeteries throughout the United States for both Annual Care and Block Markers as well as for Perpetual Care Stakes.

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QUADRIGA MFG. COMPANY

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All Landscape Architects Should Know

the cleanliness, economy and efficiency of the modern, practical road binder and dust preventive—

SO LVAY

Granulated Calcium Chloride

Natural earth roads are generally considered most artistic. Solvay Granulated Calcium Chloride will keep such roads firm, clean, cool and dustless in the hottest weather and save the expense of constant sprinkling.

Sown dry on a road with a lime spreader, the chemical absorbs water from the air and keeps the surface moist for weeks at a time.

Solvay Granulated Calcium Chloride is not objectionable in any way. It is odorless, stainless, non-poisonous, non-inflammable, and

Does Not Discolor the Road Surface

SEND FOR ILLUSTRATED
ROAD BOOK

THE SOLVAY PROCESS CO.

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SYRACUSE, NEW YORK



Woodlawn Cemetery, New York

PARK AND CEMETERY

AND LANDSCAPE GARDENING

PUBLISHED BY ALLIED ARTS PUBLISHING COMPANY

R. J. HAIGHT, President

H. C. WHITAKER, Vice-President and General Manager

O. H. SAMPLE, Secretary-Treasurer

VOL. XXIII

SEPTEMBER, 1913

No. 7

EDITORIAL

Preservation of Old Cemeteries

Reversing the judgment of the Jackson County Circuit Court in refusing to grant an injunction to the Union Cemetery Association of Kansas City Mo., to prevent the enforcement of the ordinance passed July 14, 1910, prohibiting the association from granting permission for any more interments in its grounds, Judge Woodson, in Division No. 1 of the State Supreme Court at Jefferson City, recently declared the ordinance invalid and remanded the case with instructions to the Circuit Court to act in accordance with his decision. Judge Woodson declared the ordinance unreasonable, oppressive and tyrannical and that nowhere in the proceedings has the city shown the cemetery is unsanitary or a menace to public health. "We have reached the conclusion," said Judge Woodson in the opinion, "that this ordinance was not enacted for the purpose of preserving the public health, but was passed at the instigation and request of a lot of real estate agents, land owners and speculators who think the cemetery stands in the way of the development of Kansas City in that direction and especially since the new Union station has been located in that vicinity. The complaints of the living have been as silent as those of the dead as to the insanitary conditions." The ordinance was passed by the council in 1910 in the face of pronounced opposition from the officials of the cemetery association and people whose relatives are buried in Union Cemetery. It was charged at the meetings held by the council committee that the movement to condemn and close the cemetery was not because of being objectionable, but was in the interest of real estate speculators. The decision of the Supreme Court will again permit burials in the cemetery. Since the ordinance became a law and the case has been in litigation the only burials permitted are in family lots previously sold.

An interesting aspect of the legal right to preserve old ceme-

teries is set forth in a West Virginia Supreme Court decision. Ground was conveyed to a town to be used as a graveyard and was dedicated to the public use as such. Many years thereafter, and when many dead had been buried therein, the cemetery was abandoned for a new one. The town still controlled the old cemetery, but suffered it to grow up in briars and brush, and it became in bad condition in appearance. Later the town sold it to one Couch for \$1,000 because it was no longer of any use and was a constant expense to maintain in a presentable condition and had become a rendezvous for immoral purposes. The case of Ritter vs. Couch, 76 Southeastern Reporter, 428, is a suit by one who had buried in the said graveyard many blood relatives, to enjoin Couch from removing or obliterating the graves of his relatives or the stones or monuments marking them. The relief prayed for is granted, and the conveyance to Couch is held invalid, the Supreme Court of Appeals of West Virginia in part saying: "If relatives of blood may not defend the graves of their departed, who may? Always the human heart has rebelled against the invasion of the cemetery precincts; always has the human mind contemplated the grave as the last and enduring resting place after the struggle and sorrows of this world. * * * Everything else has changed; but that sentiment remains steadfast today." Further the court says: "The briars and weeds grew up in it. What of that? The blackberry's flower is as sweet to the dead as any. The weed, though so called, spreads 'its perfume on the desert air.' They, too, are Nature's tributes to the dead.

'Above the graves the blackberry hung,
In bloom and green its wreath;
And harebells swung as if they sung
The chimes of peace beneath.'"

Quarantining Against Tree Pests

One of the most extensive quarantines yet established under the authority of the Department of Agriculture is that recently announced by Secretary David F. Houston against the gipsy and brown-tail moths. It affects each of the New England states, and establishes regulations which will greatly curtail the transportation of all manner of lumber products, florists' stock, and Christmas trees and decorative plants, such as holly and laurel, in interstate commerce. The quarantine became effective August 1 and will continue until lifted by the Department. The gipsy and brown-tail moths have been slowly gaining ground in New England for several years, and extensive measures have been in force in the states to check their ravages. The Department established a partial quarantine notice last November, which is superseded

by the order now promulgated. The quarantine order announces that the gipsy moth (*portheiria dispar*) and the brown-tail moth (*euproctis chrysorrhoea*), "new and not heretofore widely distributed within and throughout the United States," exist in parts of states as follows: The gipsy moth, in Maine, New Hampshire, Massachusetts and Rhode Island; the brown-tail moth, in all six of the New England states. Under authority, therefore, of the "Plant Quarantine Act" of August 20, 1912, Secretary Houston declares quarantine against the area infested, and forbids the interstate movement of plants except under strict regulations. The full text of the quarantine act is given on another page in this issue and should be carefully studied by everyone who is interested in the extermination of these dangerous pests.

Vandalism in the Parks

Vandalism and misbehavior in the parks seem to be something which cannot be wholly escaped. Every summer scores of people are arrested for breaking off shrubbery and flowers and otherwise violating the regulations governing the parks. On one Sunday over one hundred arrests were made for infractions of the law in Prospect Park, Brooklyn, and the fact that this large number of people were taken in charge following wholesale arrests and ample warning the Sunday before is extremely puzzling. The possible explanation of the annual outbreak is that the public finds itself unable to resist the temptation to gather flowers in the parks after

the long winter months when little that is green or blooming is to be seen. This is a natural and expected weakness, but that is no reason why it should be tolerated. The arrests on this one Sunday and the fines aggregating over \$1,000 imposed the next day show that the authorities propose to treat vandalism and misconduct as they should be. If these offenders can stand the inconvenience and cost of arrest, certainly the general public can. But the punishment ought to be made severer until the obnoxious habits have been broken.

PARK SWIMMING POOL AND BATH HOUSE SERVICE

This new and modern bath house at Calhoun Park, Minneapolis, was completed last July and the building is in every respect highly satisfactory and is probably

4. The children's department, in a separate room, with 84 lockers.

The first three have shower baths and inside toilet accommodations. There are

emergency hospital room are provided. The basement contains a heating plant and a pump and compression tank delivering drinking water from a deep artesian well to seven drinking fountains distributed through the building and the terraces.

The entire building is of a monolithic, concrete construction, dry mixture, and is of a very pleasing and imposing appearance. The dressers are built of steel frames, expanded metal and plaster, and the lockers are of steel, and standard size.

The beach, which is 1,200 feet long and 200 feet wide, was built from sand pumped out of the lake.

The cost of the Calhoun baths is as follows:

Beach, 95,060 cubic yards of sand delivered by dredge at 14½¢ per cubic yard	\$13,783.70
Grading of beach	930.50
Pile foundations, 592 piles.....	3,111.72
General contract of building proper	40,410.00
Extras	308.77
Plumbing	5,997.00
Heating	1,191.32
Well, pump and compression tank	1,462.61
Painting	674.00
Electric wiring and fixtures.....	2,175.00
Lockers	3,745.00
Outside clock	229.00
Architect's fees and inspection...	3,516.12
Engineering	463.50
Curbing	78.00
Grading, turfing and planting....	1,244.37



FORMAL OPENING OF CALHOUN BATHS, MINNEAPOLIS.

as sanitary, well arranged and well equipped a bath house as there is in the country. The building contains:

1. The men's department, with 118 dressing rooms and 706 lockers.
2. The women's department, with 37 dressing rooms and 210 lockers.
3. The boys' department, with 36 dressing rooms and 252 lockers.

also toilet rooms for both sexes accessible from the outside. Well arranged suit rooms are provided for each of the three departments, from where suits and towels are obtained by the bathers as they enter the courts, which, with the exception of the children's department, are open overhead. A cashier's office, a reception room, a refreshment counter and a well equipped



BOULEVARD FACADE, CALHOUN BATH, MINNEAPOLIS.



SWIMMING POOL, HOBOKEN PARK, HOBOKEN, N. J.

Docks, safety lines, floats, diving platforms, etc.	628.18
Beach lights	537.09
Hardware	1,500.00
Total.....	\$81,980.88

The building accommodates 1,252 people.

That this bath house and beach fills a long felt want was demonstrated by the instant popularity with which it was received by the people of the whole city and of all classes. No charge is made for the use of the building and only a nominal charge for the renting of suits, towels and other furnishings. It is hoped that the income from such rentals will make the operation of the baths nearly self-sustaining. The total recorded attendance was 116,085. The highest attendance for one day, August 25, was 4,347. Hundreds of people, however, came in automobiles, and on foot from nearby houses, in their bath-

ing suits, and went on the beach without being recorded.

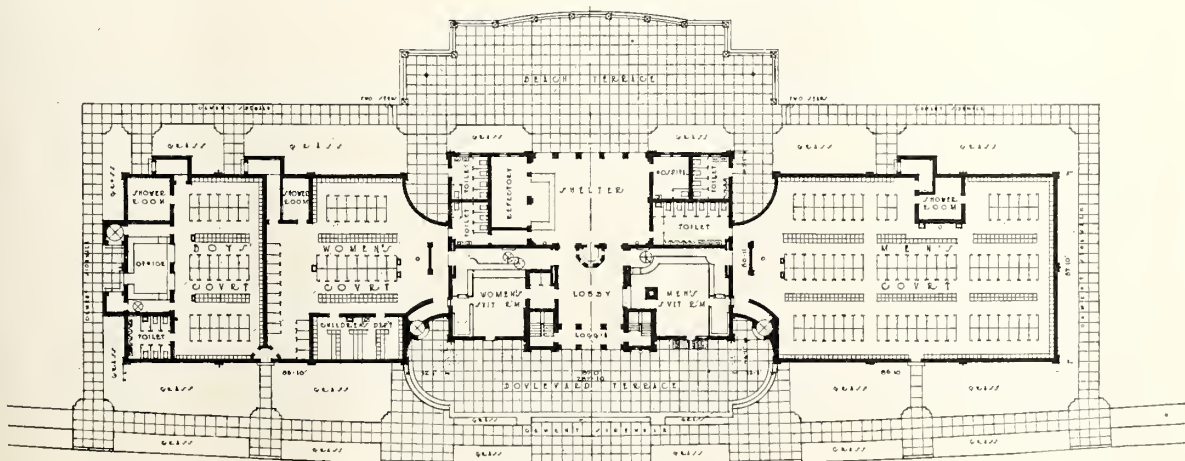
The swimming pool and bath house at Hoboken Park, Hoboken, N. J., is under the management of the Hudson County Park Commission. It was designed and construction was supervised by Charles N. Lowrie, landscape architect, 101 Park avenue, New York City.

The bath house is of Italian architecture, built of terra cotta tile with stucco finish. It consists of one floor and basement. The basement contains furnaces for heating the building and providing hot water for showers. Here also is the artesian well, 600 feet deep, providing water at the rate of 80 gallons per minute for the entire park. The pumping equipment consists of a deep well pump operated by an electric motor, and a compression tank with a capacity of 2,400 gallons.

The main floor is divided into three

rooms. On the southeast corner is the locker room with lockers, showers and lavatory for those using the athletic fields. This opens into the shower room on the northeast corner, with showers and lavatory for use of bathers. The entire west half of the building is devoted to a dressing room for bathers. These two rooms open on each, and each room also opens directly on the platform of the swimming pool, which is on the north side of the bath house.

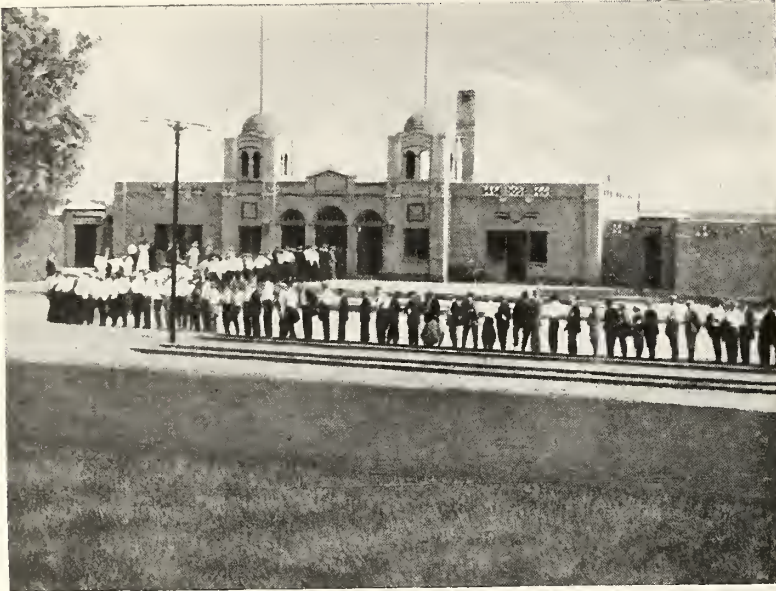
This outdoor swimming pool is 70 feet long and 30 feet wide. It is surrounded by a concrete walk three feet wide on three sides and eight feet wide on side adjoining bath house. It is surrounded by a fence of terra cotta blocks with a stucco finish seven feet high on the inside and nine feet high on the outside, the swimming pool being two feet higher than the surface of the ground. The pool is five and a half feet deep at one end and three



FLOOR PLAN, CALHOUN BATH HOUSE, MINNEAPOLIS.

feet at the end next to bath house. It is built of concrete, reinforced with wire mesh and steel rods at two-foot intervals.

showers during the winter season from 2 p. m. to 8 p. m., for boys and men only. The outdoor swimming pool is open from



WAITING LINE AT CALHOUN BATH HOUSE.

Its walls are ten inches thick, waterproofed on inside with five-ply felt and tar waterproofing. Over this is a three-inch cement wall of hydrolithic waterproof cement.

The bath house is open for the use of

June 1 to about the middle of September, from 12 noon to 6 p. m. On Mondays, Wednesdays and Fridays, for women and girls, and on Tuesdays, Thursdays and Saturdays, for men and boys.

At 12 noon there is usually a long line waiting for the doors to open. A policeman at the door allows fifty to enter. These are directed to their dressing rooms. As soon as clothes are removed all bathers must go under showers, soaping themselves thoroughly with soft soap provided by the management. They are then subjected to an inspection, and if clean and free from skin disease are allowed to enter pool. At the end of thirty minutes, at a signal from the attendant, all bathers must leave pool, dress and immediately leave bath house. All must have vacated bath house before the next batch of fifty is allowed to enter. As soon as the last bather for the day has left, the pool is immediately emptied. This requires about an hour and a half. It is then thoroughly scrubbed with soap and soda and refilled. The filling is usually completed at 10 a. m. the following day.

In addition to the policeman at the door there is an attendant in the bath house and one at the swimming pool.

Last year there was considerable trouble with soot and coal dust from nearby factories, dirtying the water surface. A scum gutter was cut in the wall entirely around the pool at the level of the water. The surface is now entirely free from dirt.

A STRIKING EFFECT IN POINSETTIAS

The sheer stunning effect of such a mass of poinsettias as shown here is not to be measured by mere black and white type and reproduction.

When the original of this group arose unexpectedly on a Florida horizon, a gasp of astonishment most nearly describes the situation. It was almost too much for Northern eyes, uneducated, as yet, in Southern horticultural possibilities.

But contemplation only heightens the joy in this bit of planting, as well as reveals the fact that it stands for something more than an unusual and almost sensational color scheme, although that constitutes its chief feature and greatest charm.

For the grand mass of green foliage forms a perfect setting for the lavish adornment of splendid scarlet rosettes which finish every branch and twig, and both are enhanced by the appropriate background of neutral gray walls supplied by the cement house, which is pleasingly broken in line by the porch balustrade (of the same cement) on the left and the rounding bay on the right, as well as by the various window openings.

In addition to this, the impressive size of the planting, some twenty-five feet in length and ten or twelve in height, its irregular depth and the excellent taste which has limited the plantation to the one species, are sources of pleasure to the con-

noisseur, while to find the poinsettia so well grown is a revelation.

As usually seen out of doors, this shrub is merely a series of long, immodestly naked and awkwardly straggling stems, topped by scattering heads of the brilliant bracts that advertise its insignificant blooms. Just lop-sided, unattractive and unhappy-looking plants, seemingly cast into an unfeeling world and left from earliest youth to pursue life untutored in its arts and graces. Here, on the contrary, are plants which have from infancy been pruned,

trained and encouraged in the way they should go and consequently present almost a perfect picture of development.

This altogether satisfying consummation is responsible for an enlarged decorative scheme. The line of baby plants seen on the left shows part of the beginning of a second and larger plantation of the same shrub coming on to increase the beautiful group to a bank of luscious color, which, with its charming setting, should become one of the sights of St. Petersburg.

FRANCES COPLEY SEAVEY.



POINSETTIAS IN FLORIDA; PHOTO BY MRS. SEAVEY.

OFFICIAL COMMUNICATIONS

H. S. RICHARDS, Chicago, President



AND CONTRIBUTIONS

J. J. LEVISON, Brooklyn, N.Y., Sec.-Treas.

THE DENVER CONVENTION A GREAT SUCCESS

The fifteenth annual convention of the American Association of Park Superintendents held August 25, 26 and 27 at Denver, Col., was generally regarded as the best attended and most successful in the history of the organization. There was an attendance of over 200 and 34 new members were enrolled.

The meeting was one of the most practical, useful and interesting ever held, and the plan of laying especial emphasis on outdoor field work and demonstrations proved successful and interesting in every detail. There was rare opportunity for the visitors to see some important parks and drives in the making and the development of Denver's wonderful park system was a vastly interesting and profitable study.

The local park men and city officials left nothing undone that could minister to the pleasure or profit of the visitors and the meeting was from every point of view a rarely successful combination of business and pleasure.

Field work was given the place of importance on the program, and the several addresses by authorities of national reputation were well calculated to furnish direction and incentive to first hand study of the subjects discussed.

To give more definite professional and scientific recognition to membership in the association a plan was discussed for the revision of the constitution to provide for four classes of membership—senior, junior, associate and honorary. Definite details of



SUNDAY AFTERNOON BAND CONCERT IN CITY PARK AT DENVER.

this plan have not been worked out, but a committee was appointed to consider the matter and report at the next annual meeting.

The following officers were elected:

President, H. S. Richards, Asst. Supt. South Park System of Chicago.

Vice-presidents, G. W. Burke, Supt. of Parks, Pittsburgh, Pa.; Fred C. Green, Supt. of Parks, Providence, R. I.; Frank Brubeck, Supt. of Parks, Terre Haute, Ind.; W. S. Manning, Gen. Supt. of Parks, Baltimore, Md.; G. Hennenhofer, Supt. of

Parks, Pueblo, Colo.; G. Champion, Supt. of Parks, Winnipeg, Can.

Secretary-treasurer, J. J. Levison, Forester, Dept. of Parks, Brooklyn, N. Y.

The first session of the convention opened Monday, August 25, with President James B. Shea of Boston in the chair.

Manager Perkins, Commissioner of Property Otto Thum and President J. S. Macbeth of the park board made formal addresses of welcome, responded to by President Shea for the association. The first paper, "Playground and Recreation Facilities and Their Management," was contributed by Edward DeGroot, general secretary of the Playground Association of Chicago.

Mr. DeGroot emphasized the increasing importance of the playground movement and urged more careful attention for the direction of children's play. He sounded the keynote of what was one of the most important topics which came up for discussion during the meetings.

When Mr. DeGroot closed the convention adjourned for luncheon at City Park.

In the afternoon the entire party was taken for a thirty-five mile drive in automobiles through the principal parks and drives of the Denver park system. The drive led through City Park to Seventeenth avenue parkway; through Montclair Park System; back to City Nursery; thence to Cheesman Park; to Speer boulevard; around Sunken Gardens; across Fourteenth



LOOKING ACROSS THE SUNKEN GARDEN, DENVER PARK SYSTEM.

street viaduct to Jefferson Park; to Sloan and Cooper Lakes; then back to Federal boulevard and West Forty-ninth avenue to Inspiration Point; back to Berkeley Park; thence to Rocky Mountain Lake, where Seventh Day Adventists were holding their annual camp meeting; returning to Brown Palace Hotel. Local park men pointed out the interesting features of park work to the visitors and a most profitable and interesting afternoon of pleasure and field work was thoroughly enjoyed by every one present.

In the evening the association was the guest of the Denver Athletic Club. They were first invited for a plunge in the club's handsome pool and then sat down to dinner at the club, during which an interesting address was made by J. S. Macbeth, president of the Denver Park Commission.

After the sumptuous menu had been thoroughly enjoyed, the party was taken by automobiles to the City Park, where there was a band concert, moving pictures and a display by the electric fountain.

At the next morning's business session, Herman W. Merkel, Forester of the New York Zoological Park, made an illustrated address on "The New York Idea of a Zoological Park," in which he described the great work with the animals that is being done in New York. Mr. Merkel urged more extensive installation of animals as park features. "An opportunity almost without parallel," he said, "confronts Denver in the new mountain parks which are about to be opened. Some of the most rare varieties of mountain animals might be sheltered there—a source of pleasure and education to thousands. In the New York zoo, whose animal population is 5,782, there are many mountain species. But in low altitudes they do not thrive as they would here in the hills among their native rocks."

Following Mr. Merkel's talk, there came another from New York, one concerning the New York botanical gardens. It was given by George V. Nash, head gardener, and by words and lantern slides, described the great gardens of New York minutely.

Secretary J. J. Levison of Brooklyn gave an illustrated lecture at this session on "The Care and Planting of Ornamental and Shade Trees," and Ralph R. Benedict, Engineer of the Kansas City Park System, presented an able paper on "Roadway Grades." Mr. Benedict's address is given in this issue and the other papers of the convention will follow in succeeding issues.

In the afternoon there was another auto ride of inspection about the park system covering the following points of interest: To Washington Park by way of Speer boulevard and Marion street parkway; thence to Logan boulevard and Platte Park; back to Speer boulevard and Lincoln Park; thence to Public Bath House; to Curtis Playground; to Elyria Playground;

to Globeville Playground; to North Side Playground.

In the evening the party gathered at Elitch's Gardens to attend the performance of "Smith."



FIRE WORKS IN CITY PARK AT DENVER.

Wednesday was the great Field Day of the convention for the inspection of Denver's unique mountain parks and drives, and the occasion was made doubly memorable by being the official opening of this wonderful system of mountain drives.

The beautiful mountain pictures connected with broad, winding roads, although not yet completed, received dedication in words of praise from the members of the association. After a sixty-five mile automobile trip, as guests of the Denver park board, many declared that the place would become the playground of America, and should be called America's park system.

Twenty-two automobiles filled with Denver's guests, and Otto Thum, commissioner of property; Frederick Steinhauer, superintendent of parks; Walter Salter, first assistant city engineer, and E. G. Letts, assistant secretary of the park board, left the Chamber of Commerce at 9 o'clock. Over a broad road blasted from the sheer sides of rock-ribbed hills up on Lookout Mountain, over a firm, wide road to Genesee Park, over to Bergen Park, down Bear Creek canon to Robin's Nest (the summer home of E. W. Robinson), along the beautiful road that follows Bear Creek into Morrison and into Denver the guests were taken—and every mile was filled with words of commendation for the system and those who have worked to make it possible.

Out Boulevard F and on the North Golden road to Lookout Mountain was the

first lap of the trip run over roads that no automobile could find fault with. Just outside Golden the road built by the park board begins its ascent to Lookout Mountain. On a grade running from a minimum of 3 per cent to a maximum of 6 per cent the road has been blasted out of the rock twenty feet wide, and made solid with disintegrated granite. In many places concrete walls have been built, holding in place sides that might crumble.

The road winds around in a way that shows the genius of an engineer—in a way that gives the traveler as beautiful scenery as could be found anywhere. Stretching away on the right, far below, are the plains in green and browns, with Denver, its white streets showing plainly, the capitol dome gleaming, familiar buildings to be pointed out, as a background. To the left, green valleys dotted with ranch houses, here and there men working at basalt mines and through the valleys streams of silver racing along. And, always ascending, the automobilist views the mountains rising higher, seeming to climb upon one another, clad in a purple haze, before him.

Men were working along the road, blasting here, making more solid the side there. At intervals were water tanks put up by the park board to refresh man and beast. Neat signs lined the road, giving the grade and the elevation.

The road has been finished only to Windy Point, two miles from Lookout Mountain. From there on the old narrow mountain trail is used. The park board will finish this road, seeking an easier grade, on to Lookout Park as soon as possible.

At Lookout Park the guests were entertained by L. F. Kimball, president and general manager of the Lookout Mountain Park Development Company. They were given rides on the railway, treated to refreshments, and shown over the park. Then they sat down in the great dining tent of the Ryan Construction Company's camp for a fried trout dinner. The Ryan company has the contract for the road building. The park board bought 300 pounds of mountain trout for their guests and a dinner of trout, baked potatoes and cantaloupe was served. After the dinner the guests roamed over the park, admiring the beauty spot, which is the first in the chain of the system.

From Lookout Park the road is nearing completion to the foot of Genesee Mountain. The road has been widened and improved until it is as smooth as a floor. Entering Genesee Park the road winds through the pine trees through which the sun cannot beat down for three miles or more. From the foot of the mountain the path of the road's continuation has been surveyed.

From the road's ending the guests walked to the top of the mountain, from

where James' Peak, Central City and Black Hawk and other peaks were pointed out to them. Short speeches were made by some of the guests praising the system, and others drew maps of the Genesee Park, taking in the 1,000 acres the park board has acquired, and the points of interest that can be seen from the mountain top. From Genesee Mountain the newly built road was taken to Bergen Park, a place of pines and wild flowers, an ideal place for camping. Both in Bergen Park and in Genesee Park several families have tents, having obtained permission to camp from the park board.

Leaving Bergen Park the rest of the trip was over what the park board hopes to acquire as a connecting road and continuation of its system. Down Bear Creek canon through peaceful, restful little Evergreen, right alongside the purling stream with the smell of pine and balsam in the air and a cool breeze is a mountain road built by the county which the park board hopes by co-operation with the county commissioners to widen and rebuild. Down Bear Creek canon to the summer home of E. W. Robinson, a member of the park board, the tour was continued. There Mrs. Robinson and her husband, assisted by Mrs. George Bancroft, Miss Mae Scotland and Misses Norah and Lucia Robinson entertained. From the Robinson home the trip was continued along the road which many declared to be the most beautiful of all the trip, through the canon, walled by towering

masses of granite, through Morrison and back to Denver. The tour was finished at 7 o'clock.

At Robin's Nest the last meeting of the convention was held and the final official business transacted amid impressive natural surroundings that brought to a fitting close this most impressive convention.

The meeting next year will be held in August in Newburg, N. Y., sixty miles up the Hudson from New York City, and a part of the session will be held in New York City.

ASSOCIATION QUESTION BOX.

Mail addressed to the following members has been returned by post office authorities as unclaimed. Will they or any one else knowing their present addresses please notify Secretary Levison:

C. C. Cox, Supt. of Parks, Wichita, Kan.

John Algots, Supt. of Parks, Raceland, La.

Bernard F. Rifkin, Supt. of Parks, Reading, Pa.

ASSOCIATION EMPLOYMENT BUREAU.

Practical working superintendent, who has had charge of parks and cemeteries in large cities, desires to make a change. Young man with family; good references; member A. A. P. S. Address "Supt." care of PARK AND CEMETERY.

BOULEVARD ROAD SURFACES

An address before the Denver Convention of the Association of American Park Superintendents. By Ralph R. Benedict, Engineer of Construction, Kansas City, Mo., Park System.

There has been so much written and said on this subject for the past two years that it seems foolish to open the discussion at this convention, but it is such an important subject, confronting, as it does, every park superintendent, that we are all anxious to know how different ones are meeting it.

For one individual to discuss the paving problem met by the park superintendents in such an extensive country as this, with the various climates, physical conditions and materials, would be impossible, but if this could be thrown into an open "Experience Meeting," we would all take home some valuable lessons which others have had to work out for themselves.

The keynote of the paving problem is the maintenance, and necessarily associated with that is the economics of pavements. Our maintenance of road surfaces for boulevards in Kansas City was very simple up to the advent of the power-driven vehicle. A macadamized road, well built, withstood wear for a long time and required the minimum of repairs. But as the swift-moving automobiles came into prominence, then maintenance took on a very serious aspect and other treatments besides

sprinkling with water had to be used to lay the dust and to keep the road surface from disintegrating.

After experimenting to some extent, a method for oiling similar to that then in use in California was adopted and has given the very best of satisfaction up to the present time on boulevards that are restricted to pleasure vehicles only. The oil used in this method is a light residuum oil with a very small per cent of asphalt and of no binding qualities. A number of years' application of this oiling and dusting has built up a mat or cushion of oil and dust on top of the macadam surface. This cushion, under the action of automobile tire travel, keeps in first-class condition, but where the steel tire traffic crosses it at intersecting streets the cushion is quickly broken up, making a ravelled condition which very soon wears down to the metal of the road and causes depressions or chuck-holes to appear. At these street intersections the maintenance problem has caused our department to resort to other methods of original construction.

Park superintendents must necessarily consider the aesthetic appearance of a road.

Brick and concrete (both good for automobiles, although hard for horses) do not make a harmonious pavement for boulevards. The road which will best suit both classes of traffic must be one that neither can injure to any great extent. Boulevards have a larger proportion of pleasure vehicles, but the cross street problem makes it almost as bad as the country road. And then the problem of what to do with the many miles of existing macadam roads is one that finally led us to adopt one of the methods of bituminous construction. The penetration method was selected from necessity, as the limestone rock, which is so abundant in this vicinity, will not stand the heat necessary in the mixing method.

In building the asphalt penetrated macadam pavement the sub-grade and base are prepared in the same manner as for any water-bound macadam pavement. We practically build a ten-inch macadam road, water-sealing it, and on this is placed a two-inch layer of crushed limestone, broken so that the largest dimension does not exceed two inches and the smallest dimension is not less than one and one-half inches. This layer is then rolled with a tandem roller weighing five tons, which imbeds the stone in the lower course and smooths out the surface. Into this layer is poured, by means of hand pouring pots, one and one-half gallons of hot asphaltic cement to the square yard. The asphaltic cement is of such a consistency that it will be pliable in the winter and not run or bleed in the hottest weather. Over this surface, while it is still hot, is cast limestone grit of such a size that it will fill the voids of the other rock and make a dense surface. This is then rolled and rerolled until there is no action under the roller. The surface must then be swept clean of all excess particles of grit or dust and then a paint coat or squeegee of half a gallon of the above mentioned asphaltic cement is applied, after which grit is cast and thoroughly rolled, leaving an excess of same on the finished roadway to be worked in by travel.

A boulevard constructed along these lines has been completed about twenty-two months and has not required one cent for maintenance except a very light coat of oil just after its completion. This boulevard gets very heavy travel, being situated in the wholesale section of the city, and has been thrown open to commercial as well as pleasure vehicles.

On boulevards constructed under the old method, where very bad conditions exist at street intersections, caused, as previously stated, by steel tire traffic and also by winter rains and snows, we attempt the new class of construction. Many times we find a complete block badly in need of repairs, and in such cases we retop the same. This retopping is done in the same manner as in the new construction, except we have found that it is better to leave out the

squeegee coat, both from an economic and constructive standpoint.

The only preliminary work done in resurfacing an old boulevard is to thoroughly sweep it with a rotary broom and then excavate a strip about a foot wide along each gutter, so that the new stone will not raise the grade too high above the edge of the gutter.

No doubt the question arises in your minds as to whether or not the crown is too high with this additional two inches on top of the old crown, but we find that even where the old crown has not been worn down to any marked degree the fourteen inches in the forty-foot roadway does not give an excess crown.

In some of our cross street intersections it is only necessary to resurface just the width of the travel, and that necessitates the old surface being spiked or scarified and some of the old material removed before the new stone is laid. This new strip is then tapered in both directions, which makes a very smooth intersection.

Patching of plumber cuts and small raveled places is made by using asphaltic cement. Each district foreman has a small sixty-gallon portable melting pot, which can be attached to a wagon, and all holes are repaired as soon as they appear.

As to the cost of building the penetrated asphalt macadam roadway, we have let contracts, varying from \$1.25 to \$1.55 per

square yard. For resurfacing we have found the cost to be about 40 cents per square yard, with the stone costing \$1.60 per cubic yard and the asphaltic cement \$21 per ton.

This is our experience up to the present time in trying to obtain a boulevard road surface suitable for both pleasure and traffic vehicles.

In conclusion, the writer hopes this convention will freely discuss the road question, which plays such an important part in the construction and maintenance of park roads and boulevards, and will tell us how they are meeting these questions of new pavements, intersecting streets and patches.

HOW CEMETERY TREES ARE CARED FOR

By John L. Mearns.

The age and usefulness of the majority of deciduous and evergreen trees are canceled on an average of about 65 per cent before they have fulfilled their functions. In other words, the trees we plant for shade, landscape or general purposes die or are otherwise destroyed when they attain only 35 per cent of their possibilities.

Why not array ourselves with our neglected friends to fight their battles against the army of insect life, bind up their wounds to prevent disease and decay, make their environments more congenial and natural, and lastly, but most important, lend the proper restraint to insure a long, useful and noble existence.

The operations involved at West Laurel Hill Cemetery are forestry plantation, tree surgery, landscape planning and planting, large tree moving and tree spraying. In order to give record of the operations, will calendar the work of the past year.

In the forestry plantations a plan of esthetic forestry has been adopted after many futile efforts to reforest by tree planting the north and northwest slopes of the outer boundary of cemetery, where a heavy growth of forest monarchs (chestnut, oak, beech, hickory) are succumbing to various unhealthy conditions. The chestnut (*Castanea vulgaris*) has almost entirely been affected with the chestnut bark disease (*Diaporthe parasitica*) and it has become necessary to cut down and burn. The disease has spread so rapidly through Pennsylvania, New York and New Jersey that millions of trees have already succumbed, and to date no remedy has been found effective except on a restricted scale with the use of gouge, chisel and mallet and coal tar at the first appearance. It is my opinion that a great amount of assistance in spread of the disease is attributed to the chestnut gatherers, who use spiked climbers. After a close observation of the wounds made by the spikes it was found the puncture was to the cambium or live wood, thus forming a small pocket for

water; further, the spore had a previous opportunity to settle on the tree adjacent to the puncture, which would easily be washed in during the late fall rains. Also, the wounds are made at a time of the year when all growth has been made on the bark, thus giving an open season before making a heal.

The other large trees growing on this hill (oaks, beech and hickory) have been greatly affected with gas poisoning from the smoke and soot of mills of the American Bridge Company and from the locomotives of two railways at the base of the slope.

All over this slope numerous seedlings of oak, gum, maple and aspen have germinated, forming the basis of an extensive new generation. The small seedlings are being carefully pruned and trained to insure straight stems by the aid of white cedar stakes tied with raffia. It is amazing how quickly a small forest has been started, reaching almost 4 feet 5 inches in a few years. The cedar stakes are to be supplanted with 1-inch iron pipe, 6 to 7 feet in length, as they are more rigid. The training and pruning is with idea of obtaining a quick growth by pruning all branches to a straight single stem, 7 to 8 feet to the crown.

Very little disease has been identified on the small seedlings, although the chestnut bark disease has been found on one or two small oak seedlings. Also an oak gall (*Biorhiza aptera*) on the terminal growth, principally white oak, where the substance is soft at the time the egg is deposited. In appearance they are reddish, round, fleshy, wax bean shape when young, turning to a dark brown and drying up after the wingless female emerges. All the saplings thus affected are destroyed. Spraying with lime-sulphur salt would be effective in destroying them about June 1.

The oyster shell and San Jose scale are also affecting some of the saplings. These are destroyed with early spring spray of

L.-S.-S. The danger of fire is very great and the very steep, inaccessible hill makes ordinary fire precautions almost impossible.

The greatest amount of scientific treatment is required by the trees planted in the sections occupied by interments. A natural condition arising with a newly established cemetery is to quickly assume an old appearance by planting trees of quick growth, giving early shade. Thus we have many white maples (*Acer dasycarpum*) and sycamore maple (*Acer pseudo-platanus*). These trees are undesirable at any time, being of soft wood, easily damaged by storms and of unshapely appearance. Another habit which cannot be too strongly condemned is lopping off the terminal branch of a young tree to encourage low, squatty growth or crown. It should be the most important to preserve the leader of a young tree. One of the saddest incidents is to witness an apparently shapely, healthy tree split in twain, the result of early training to form a many branched tree with two, three or more lateral leaders eight or ten feet from the ground, which gradually with age, weighted with their individual trunks, strain and tug at the burr-growth forming the junction of the main stem, which some day relinquished its bond of unity, leaving a gap in the symmetry of the tree and an ugly, dangerous wound open to attacks of parasites, borers and fungus. Such wounds when either untreated or improperly treated cause the death of the tree.

The spore of various fungi, such as false binder fungus (*Fomis igniarius*) find excellent lodgment in such wounds and rapidly spread the mycelium or thread-like growth through the entire inner structure, changing the wood to a whitish, brittle, spongy substance, without any noticeable sign from outside except an occasional appearance of a fruiting body, which produces spore, rapidly spreading to neighboring trees.

The method of treatment when the wound is first inflicted is to carefully remove all splintered and bruised portions, making a clean, smooth surface with the aid of chisel and mallet, treating with weak solution of creosote and a heavy coating of tar. The method of treating neglected wounds where disease and decay have gained a footing: With the gouge, chisel and mallet all diseased parts, no matter how extensive, are removed, also any heal of live wood which has a tendency of inward growth is shaved clean and smooth out to the last circular growth, making entire smooth edge to the opening. This is essentially important, because the heal will emerge from the cambium or outer circular growth. Following the removal of the diseased wood, a creosote treatment, followed by a heavy application of tar. After a time, when chance of decay has been entirely eradicated, the structural wire and rods are adjusted, using horizontal rods of $\frac{1}{2}$ -inch galvanized rods adjusted in sockets and fastened to galvanized wire, which are in turn fastened to staples driven a short distance into the body of the tree. After the network of wire has been secured the forms are adjusted, such as will conform to the curvature of the tree using $\frac{1}{4}$ -inch pine with retainers fastened around the tree. The cement is thus poured, using sand³, cement¹. It is advisable to tamp the mortar so as to grout in all recesses. The following day the cement will be sufficiently set to remove the forms and cut horizontal seams about 2 inches in depth, about 18 inches apart. This will permit a slight yielding with the sway of the tree. After the finish of cement and sand has been put on and troweled smooth, the seams are again cut out and smooth edged, care being taken to have the cement inside of the contour and free from the outer live wood, so as to permit the heal to grow across, not only forming a guide, but forming a water and air-tight juncture.

As prevention is better than a cure where trees show a tendency which is easily perceptible from a close observation of the burr-juncture, an evidence of friction, often a split similar to a frost crack, the most effective remedy is to relieve the strain by the aid of iron bolts at considerable distance above the fork, drawing the two branches together. The bolt of $\frac{3}{4}$ inch should be inserted through holes bored with $\frac{3}{4}$ -inch bit, counter sinking for the nuts and washers at both ends. The hole and washer hole should be liberally daubed with tar, also the bolt and nut given an application. Care should be taken to have the ends of the bolts at least $\frac{1}{2}$ inch inside of the branches and the cavity filled with cement so as to permit a complete heal on the outer sides.

Another opportunity for attacks of disease is the improper cutting of a limb from the trunk. The limbs should be cut clean

and as close to the trunk as possible, without skinning the remaining tissue, giving an immediate application of tar. Special saws with thin backs, on the style of the carpenter's circular, of sword taper shape, are used.

Among the other trees are a great number of American elms (*Ulmus americana*) of stately growth and comparatively excellent condition, although some are affected with Slim flux, resulting from improper cutting away of branches and improper treatment subsequently. The sap, of a decided sour smell, has permitted a parasitic fungus to attack the wound, with the result that a slimy, dripping mass spreads downward, killing the under bark or cambium, thus rapidly spreading decay and death. The remedy is vigorous application of chisel and mallet to remove all decay and refilling of cavity with cement. Another frequent cause for disease and insect attacks is the careless bumping and scarring with the lawn mower, both hand and horse mower. The continual bruising and skinning around the base of young trees result in the wood structure immediately affected dying, no matter how skillfully treated, and in frequent cases admitting borers, which are hard to eradicate before great or fatal damage has been done.

The use of ordinary paint on saw cuts and wounds is very disastrous, permitting disease and decay to extend into the tree structure. This is particularly noticeable on sugar maples, Norways and other trees which have great tendency to bleed. Tar is a preservative, germicide, weather-proof and durable, and should always be used.

As trees grow larger and older continual care is a great necessity to conserve beauty and symmetry as well as to regulate the proper balance, restricting the strain of outward weight, freedom of each branch to prevent crowding, cutting off light and air, to protect a tree from continuing with more laterals than can be properly supported. However, early training, as with a child, makes a lasting goal. Pruning is necessary to formulate the definite purposes mentioned above, whether to prevent crowding, disease, borers, evidences of strain, etc.

In cemetery work a somewhat different condition exists, as a tree sometimes grows out with unconscious pride, overshadowing some monumental resting place which requires sacrifice and partial disfigurement of some noble specimen.

The pruning of shrubs is a matter which receives careful attention, maintaining the rule of eliminating the old wood as soon as the flowering season is over. Thus the Forsythias, Deutzias, Philadelphus, Spiraeas, Weigelas lead off in the late spring, followed by the later flowering varieties, lastly the Altheas and Hydrangeas. The method employed is to encourage the growth from the base; thus each year the second and third year wood will be cut

out, keeping the shrubs low, compact, preventing overgrown, shapeless mass.

With evergreens, especially various Junipers, Retinospora, Thuyas and Buxus, a shearing is given at least once in two years, usually after the rank spring growth has been made. The shearing retains the symmetry and strengthens the branches against heavy, wet snowfalls and sleet storms. With various conifer and pine, the systematic pruning of lateral branches or rubbing off the terminal lateral bud early in spring, gives a dense, compact growth.

The chief object of a cemetery is the resting place of our deceased; moreover, it sometimes happens trees or shrubs are occupying the ground and the tree has to be removed by a specially built tree-moving machine. Trees of almost any size are successfully moved and used to beautify new or unused portions of the cemetery. The machine will lift a ball of earth 6' d by 3' depth without the aid of freezing weather with three men. The greatest time is consumed in digging around and preparing. The actual lifting, transporting and replanting can be done in less than an hour. After the trees are moved a thorough root pruning and limb pruning is practiced. If the condition of the soil is dry, hard or lump, puddling is practiced, with an addition of well-rotted manure. Puddling compels the soil to return to natural strata, retaining the nitrogen, eliminating voids or air strata which are fatal to newly planted trees. After the planting is completed a mulching is placed on the surface, remaining at least the first year.

One of the most prevalent causes of the unhealthy appearance of some of the older trees is that they are suffering from root suffocation and starvation. Most everyone is familiar with the soft, porous condition of the woodland or forest floor. The fibrous feeding rootlets are very near the surface, where they have free access to oxygen and nitrogen, also the protection of the fallen leaves in summer and winter, as well as a regular food supply. The continual tramping and tracking of the lawn mower renders the soil hard and non-porous, thus eliminating proper water supply, and the cleaning up of all fallen leaves eliminates food supply. To partly overcome this condition, soil tilling and manure fertilizing utilized, even on a restricted scale, aid materially.

Other causes of various unhealthy aspects are the numerous insect pests. The trees in a cemetery present a singularly difficult problem in their battle with insects and diseases. The many expensive memorials and mausoleums of granite cannot be injured by the use of oil solutions. The use of lime-sulphur and salt are, however, non-injurious; also sulphate of copper or arsenate of lead can be used.

Among the leaf-eating pests given most attention are the elm beetle (*Galerucella luteola*), bog worm (*Thyridophtheryx ephre-*

meriformis) on deciduous and evergreen trees and shrubs, gypsy moth (*Porthetria dispar*) on aspen and Lombardy poplar and walnut, and the web worm (*Hyphantria cunea*) on most all deciduous trees. The methods of control are spraying arsenate of lead and tree banding with tree tangle-foot, also destruction of nests.

The scale pests, the oyster shell scale (*Mytilapsis pomonum*), maple, ash, elm and horse chestnut, San Jose scale (*Aspidiotus perniciosus*), flowering crab, hawthorn and Cydonia Spindle tree scale (*Chionaspis euonymi*) on Euonymus Americana and Radicans; Terrapin scale (*Eulasanum nigrofasciatum*) on Magnolia Stella; Scurfy scale (*Chionaspis furfurus*) on pines, arborvitae and fir; Elmbark scale (*Gossyparia ulmi*) on elm; Rose scale (*Diaspis rosae*) on roses, and Pit-making scale (*Asterolecanium variolosum*) on mossy cup, oak and elm, controlled by spraying lime-sulphur salt with caustic potash.

The borers: Bronze Birch borer (*Agrius anxius*) on birch, hickory; bark borer (*Scolytus quadrispinosus*) on hickory; Leopard moth (*Zeuzera pyrina*) on sugar

maples and ash; Beech borers (*Bostrichus domesticus*) on beech; Ash borers (*Hylesinus erenatus* and *Fraxinus*) on ash; Pigeon Horntail (*Tremex columba*) on Norway maples; Poplar and Willow borers (*Saperda Populea*) on poplars and willows; Spruce and Larch Bark borers (*Bostrichus laricis*); Spruce and Larch Bark borers (*Sirex juvenis*).

Borers are exceedingly difficult to eradicate, where badly infected heavy pruning and destruction of all badly infected wood. Probing with sharp wire, injecting bisulphide of carbon in the holes and plugging with softened pitch or tar and where wood is sufficiently heavy cutting out with chisel and treating with coal tar. A heavy spraying at frequent intervals during July, August and early September of whale oil soap, copper sulphate and concentrated lye will be of much benefit in eradicating during the egg depositing.

Among the other insects the Red Spider (*Tetranychus bimaculatus*) on many evergreens, especially boxwoods. Strong spray of sulphur lye and whale oil soap; Leaf

Roller (*Tortrix heparyana*) on plane controlled by tree banding and early spraying copper sulphate, sulphur and lye; Holly leaf fly (*Phytomyza ilicis*) on Holly, Rhododendron, Azalea Aemona, spraying with whale oil soap during summer; Floating White or Woolly Aphis (*Pseudococcus acesis*) on Beech and Maple, spraying at first appearance with copper sulphate, soap and lye weakened solutions at frequent intervals.

Some of the fungus diseases, the result of early improper treatment, are Slim Flux on Elms, false binder fungus (*Fomis ignarius*). Treatment has been described in foregoing portion of article.

From the list of pests and diseases on the trees on West Laurel Hill Cemetery one should not understand total infection, for such is not the case. The number of pests has been discerned by careful research and are under thorough control. The existence of a greater number and greater extent will be found in most any arboretum after a careful, systematic search.

GIPSY AND BROWN-TAIL MOTH QUARANTINE

It has been recently determined by the Secretary of Agriculture that the gipsy moth (*Porthetria dispar*) is dangerously prevalent in the states of Maine, New Hampshire, Massachusetts and Rhode Island; and the brown-tail moth (*Euproctis chrysorrhoea*) in Maine, Vermont, New Hampshire, Massachusetts, Connecticut and Rhode Island.

The Secretary of Agriculture has therefore quarantined considerable areas in these states as infested by the brown-tail moth and the gipsy moth, and, by Notice of Quarantine No. 10, orders that coniferous trees such as spruce, fir, hemlock, pine, juniper (cedar), and arborvitae (white cedar), known as "Christmas trees," and decorative plants such as holly and laurel, known as "Christmas greens or greenery," and forest plant products, including logs, tan bark, posts, poles, railroad ties, cordwood and lumber, and field-grown florists' stock, trees, shrubs, vines, cuttings and other plants and plant products for planting or propagation, excepting fruit pits, seeds of fruit and ornamental trees and shrubs, field, vegetable and flower seeds, bedding plants, and other herbaceous plants and roots, shall not be allowed to move interstate from any point in the areas quarantined to any point not located in the quarantined areas except as prescribed in the rules and regulations made and amendments thereto.

The following towns and all the territory between said towns and the Atlantic Ocean are quarantined for the brown-tail moth:

Lubec, Perry, Robbinston, Charlotte, Cooper, Plantation XIX, Wesley, Plantations XXXI and

XXX, Devereaux, Plantations XXVIII, XXXIII, and XXXII, Milford, Alton, LaGrange, Medford, Orneville, Atkinson, Dover, Sangerville, Parkman, Wellington, Brighton, Solon, Ehdn, New Portland, Freeman, Salem, Phillips, Berlin No. 6, Byron, Andover N. Surp., and Grafton, Maine; Cambridge, Dummer, Stark, and Northumberland, New Hampshire; Guildhall, Granby, Victory, Burke, Sutton, Sheffield, Wheelock, Stannard, Walden, Cabot, Marshfield, Plainfield, Barre, Williamstown, Brookfield, Randolph, Bethel, Stockbridge, Barnard, Pomfret, Woodstock, Reading, Cavendish, Chester, Grafton, Townshend, Newfane, Marlboro, and Halifax, Vermont; Colerain, Shelburne, Conway, Williamshurg, Westhampton, Southampton, Westfield, and Southwick, Massachusetts; Suffield, Windsor Locks, Windsor, Bloomfield, West Hartford, Hartford, East Hartford, Manchester, Bolton Coventry, Windham, Franklin, Bozrah, Norwich, Preston, North Stonington, and Stonington, Connecticut.

The following towns and all the territory between said towns and the Atlantic Ocean are quarantined for the gipsy moth, namely: Lincolnville, Belmont, Searsmont, Montville, Knox, Brooks, Unity, Troy, Albion, China, Vassalborough, Augusta, Chelsea, Farmingdale, West Gardiner, Winthrop, Monmouth, Leeds, Turner, Minot, Oxford, Otisfield, Casco, Sebago, Hiram and Bronsfield, Maine; Conway, Madison, Tamworth, Sandwich, Thornton, Ellsworth, Rumney, Groton, Alexandria, Danbury, Springfield, Sunapee, Goshen, Washington, Stoddard, Sullivan, Keene, Swansey and Winchester, New Hampshire; Warwick, Orange, New Salem, Petersham, Barre, New Braintree, Northfield, Spencer, Charlton, Oxford and Douglas, Massachusetts; Burrillville, Gloucester, Johnston, Cranston, Warwick, North Kingston, Portsmouth and Bristol, Rhode Island; Somerset, Fall River and Westport, Massachusetts.

The towns of Eden, Mount Desert, Tremont, Surry, Penobscot, Blue Hill, Sedgwick, Deer Isle, Vinal Haven, North Haven, Islesborough, Searsport, Stockton Springs, Frankfort and Winterport, Maine, are also infested and are also quarantined for the gipsy moth.

GIPSY MOTH REGULATIONS.

Coniferous trees such as spruce, fir, hemlock, pine, juniper (cedar), and arborvitae (white cedar), known as "Christmas trees," and parts thereof, and decorative plants, of the area quarantined for the gipsy moth, such as holly and laurel, known

as "Christmas greens or greenery," shall not be allowed to move interstate to points outside the quarantined area.

Forest plant products including logs, tan bark, posts, poles, railroad ties, cordwood and lumber, and field-grown florists' stock, trees, shrubs, vines, cuttings and other plants and plant products for planting or propagation, of the area quarantined for the gipsy moth, excepting fruit pits, seeds of fruit, and ornamental trees and shrubs, field, vegetable and flower seeds, bedding plants and other herbaceous plants and roots shall not be moved interstate to any point outside the quarantined area until such plants and plant products have been inspected by the United States Department of Agriculture and pronounced free from the gipsy moth.

BROWN-TAIL MOTH REGULATIONS.

Deciduous trees or shrubs of the area quarantined for the brown-tail moth, or such parts thereof as bear leaves, including all deciduous field-grown florists' stock, vines, cuttings, grafts and scions, but excepting forest plant products such as logs, tan bark, posts, poles, railroad ties, cordwood and lumber, shall not be moved or allowed to move interstate to points outside the quarantined area until they have been inspected by the United States Department of Agriculture and pronounced to be free from the brown-tail moth.

The department has also enacted the following general regulations:

GENERAL REGULATIONS.

(1) Every car, box, hale, or other container of plants and plant products of which inspection is required by these regulations shall be plainly marked with the name and address of the consignee and the name and address of the con-

signee, and shall bear a certificate showing that the contents have been inspected by the United States Department of Agriculture and found to be free from moth infestation.

(2) Carload and other bulk shipments of plants and plant products for which inspection is required by these regulations shall not be transported or offered for transportation interstate by cars, boats, and other vehicles, unless each shipment is accompanied by a certificate showing that the plants and plant products have been inspected by the United States Department of Agriculture and pronounced to be free from moth infestation. The inspection certificates shall accompany the waybills, conductors' manifests, memoranda, or bills of lading pertaining to such shipments made by cars or boats.

(3) Certificates of inspection will issue only for plants and plant products which have been actually inspected by the United States Department of Agriculture, and the use of such certificates in connection with plants and plant products which have not been so inspected is prohibited.

(4) Where inspection and certification are required by these regulations, inspection and certification by an inspector or other agent of the Federal Horticultural Board are meant, and such in-

spection and certification will be furnished without the payment of fees or charges of any nature.

(5) Plants and plant products, of which the interstate movement is prohibited or restricted by these regulations and which are grown outside the areas quarantined for the gipsy moth or the brown-tail moth, may be shipped interstate from points within the quarantined areas to points outside the quarantined areas under permit from the Secretary of Agriculture. Permits will issue only for plants and plant products which are not infested with the gipsy moth or brown-tail moth and transportation companies shall not accept or move interstate from within the quarantined areas such plants and plant products grown outside the quarantined areas, unless each shipment is accompanied by a permit issued by the superintendent of moth work at Boston, Mass.

Blanks on which to make application for inspection or for permits will be furnished upon request by the United States Department of Agriculture, Bureau of Entomology, 43 Tremont street, Boston, Mass.

(6) Persons intending to move or allow to be moved interstate plants and plant products for which certificates of inspection or permits are re-

quired by these regulations, will make application therefor as far as possible in advance of the probable date of shipment. Applications should show the nature and quantity of the plants or plant products it is proposed to move, together with their exact location and, if practicable, the contemplated date of shipment. Applicants for inspection will be required to place the articles to be inspected so that they can be readily examined. If not so placed inspection will be refused.

(7) The interstate movement of all classes of plants and plant products entirely within the area quarantined for the gipsy moth and the brown-tail moth will be permitted without restrictions, other than those which may be imposed by State officials at points of destination.

On and after August 1, 1913, and until further notice, by virtue of said section 8 of the act of Congress approved August 20, 1912, it shall be unlawful to move in interstate commerce any of the above-described plants or plant products from the area herein quarantined, except in accordance with these regulations and amendments thereto.

This Notice of Quarantine amends and supersedes Notice of Quarantine No. 4, promulgated November 5, 1912, and shall be effective until otherwise ordered.

HINTS ON LAWN-MAKING IN ST. LOUIS

From Bulletin of Missouri Botanical Garden.

The ideal soil for lawn grasses is one which, while remaining moist, never becomes saturated with water. Thus a clay or sandy loam, with a clay subsoil, is much better adapted to the purpose than a light, loose soil, which dries out rapidly. Unfortunately, the land around a new house is not usually well adapted for a lawn, owing to its being mixed with the subsoil which has come from the excavation, or the undesirable earth which is hauled in for grading. It is often necessary, therefore, to spend a year or more in getting the earth into proper condition before seeding it for a permanent lawn.

PREPARATION OF THE SOIL.

In making a lawn for the first time on light, sandy, soil, two or three inches of clay incorporated with the first four to six inches of sand will be of the greatest benefit. Stable manure at the rate of twenty to thirty loads per acre will assist in furnishing the necessary humus, and if a crop of legumes, such as cow-peas, can be grown and then turned under, the beneficial result will more than pay for the delay and expense.

Practically all lawn grasses prefer an alkaline soil, and in St. Louis, where, owing to the smoke, the tendency of the soil is to become acid, it is particularly desirable to add some form of lime. Air-slaked lime at the rate of from one-half to a ton per acre may be used, or there are certain advantages in applying a crushed limestone rock at about double the proportions employed for air-slaked lime. The rock remains available in the soil much longer, and under ordinary circumstances gives up a sufficient amount of alkali to maintain the desired condition. Hardwood ashes at the rate of a ton to the acre are sometimes used with good effect, as they assist materially in correcting the acidity of the soil. Raw crushed bone, 500 pounds or more to the acre, may be used in the original preparation for a lawn, and the usual combinations of chemical fer-

tilizers are all useful. Stable manure is, for light soils, greatly superior to chemical fertilizers, since it not only adds a sufficient amount of plant food, but likewise improves the texture and water-retaining capacity of the soil. It should be borne in mind that it is impossible to get a soil too good for a lawn, and that there is every necessity for taking great pains at first, since the grass is to be a permanent crop.

WHAT SEED TO SOW.

The ideal grass for a lawn should have a creeping underground stem with short joints, producing long, narrow leaves in abundance, making a close turf. In addition, the color should be pleasing and permanent, that is, not changing radically through the season, and the more drought-resistant it is, the better. In addition, it must stand repeated cutting and should be adapted to as large a variety of soils as possible. Kentucky blue grass (*Poa pratensis*), not Canadian blue grass (*Poa compressa*), undoubtedly comes nearer to this ideal than any other single grass, and for this reason it forms a part of practically all the mixtures used for the purpose under discussion. Unfortunately, blue grass does not stand well the summers of St. Louis, and it is a fact not generally recognized that a good lawn from this grass alone cannot be obtained under three or four years. It has been a much-debated question whether blue grass should be sown with other grasses or not, but in this locality there can be but one answer, namely, that some mixture combining several of the standard grasses is far preferable to blue grass alone. It must be admitted at once, however, that there is no such thing as a perfect universal lawn mixture. The conditions under which grass has to grow in different localities and the varying tastes of individuals has resulted in a number of formulas being suggested which may or may not prove successful when used by different planters. Blue

grass not only requires several years in which to become thoroughly established, but it does not grow as closely to the ground as some other varieties, and in order to have a green lawn as soon as possible it is absolutely necessary to use a combination of seed. Furthermore, it is a fact that a thicker growth can be obtained from a given area where several kinds of grasses are growing than where one is alone.

A mixture which has been widely used and which, under favorable conditions, gives satisfactory results, is the following:

Fancy Kentucky blue grass.....	50%
Fancy red top (<i>Agrostis alba</i> var. <i>vulgaris</i>)	20%
Rhode Island bent (<i>Agrostis canina</i>) ..	15%
English rye (<i>Lolium perenne</i> var. <i>tenue</i>)	15%

Such a mixture should be planted at about the rate of one pound to every four hundred square feet, or one hundred pounds (five bushels) to the acre.

English rye starts almost as soon as sown, and in a month or six weeks will present a uniform green appearance. It is not a long-lived grass, and will be obliterated during the second season, but is worth while on account of the immediate and satisfactory results obtained. The red top stands hot weather well, grows rapidly and is not easily killed out. Rhode Island bent is the basis of the famous Newport lawns and makes a strong turf which will stand tramping well. It also acts as an admirable "nurse" to the blue grass.

Tastes differ as to the desirability of white clover (*Trifolium repens*, var. *perenne*) in a lawn. Some think it adds to the beauty of a greensward, and others strongly object to its appearance, considering it out of place. In its favor it may be said that white clover produces a dense, quick growth, and will often make a green covering where grass seed fails. It will

not stand rough usage, however. If desired in a lawn, it should be sown sparingly, not over two to four pounds to the acre, and separately, for, being heavy, it will be paid to lawns for wet, sandy clay with the other seed.

Various other combinations of seed too numerous to mention might be referred to, but space will not permit. There will be started this spring at the Garden a number of experimental plots which, it is hoped, will furnish to those interested examples of various combinations of grass seed and the resulting lawns. In addition to the standard mixtures, special attention will be paid to lawn for wet, sandy clay and shady locations, as well as those for putting greens, fair greens, etc.

TIME TO PLANT.

The greatest difference of opinion exists as to the relative advantages of spring and fall planting of lawns. Both periods have been repeatedly shown to bring successful results, and it is largely a matter of the weather conditions existing after the putting in of the seed which determines failure or success. If one could be certain of the kind of winter or spring which was to follow the making of the lawn, it would be comparatively simple to decide upon the best time to plant. As it is, seeding should depend upon convenience, and chances must be taken on the result. In general, it may be said that spring planting is more certain than fall planting, unless, owing to weather conditions, seeding has to be delayed too long. Drought and heat are hard on young plants which have not had time to form sufficient roots. It is not advisable to sow seed during a dry period either in spring or fall. A careful preparation of the land which insures ready germination will sometimes offset the effect of limited dry periods, but artificial watering should always be resorted to if sufficient moisture is not present to force rapid growth.

After a lawn is established, more harm is often done by the methods of watering usually employed. Mere sprinkling has a tendency to cause the roots of the grass to grow close to the surface of the soil, and consequently the plants must be almost continuously watered in order to keep them alive. Land properly prepared in the first place will induce deep root growth, and, except in unusually dry seasons, no water whatever is necessary. Another objection to light sprinkling is that it induces the growth of wild grasses, which cannot thrive under as dry conditions as the standard lawn varieties.

The most careful and thorough preparation of the soil originally will not obviate the necessity for an occasional top dressing of fertilizer. Stable manure, thoroughly rotted, is admirable for this purpose. Care should be taken, however, to see that it is so completely decomposed

that it contains no weed seed and that it will break up rapidly in order that it may be carried rapidly beneath the surface by means of rain and snow.

As to spring top dressing, nothing is better than powdered sheep manure, particularly if it is mixed with lime to conserve the nitrogen, which may otherwise be lost. Apply at the rate of about one ton to the acre. Bone meal and hardwood ashes in equal parts, at the same rate as sheep manure, also produce good results. For quick effects, nitrate of soda, used up to five hundred pounds per acre, is unexcelled. It is usually better to divide the total amount to be applied into three or four lots, applying each lot before a rain. In fact, all top dressing should be put on as nearly as may be possible before a rain in order to insure the washing in of the fertilizer, as well as to prevent the discoloration of the lawn.

CONCLUSIONS.

Don't underestimate the importance of a thorough preparation of the soil before trying to establish a lawn. Most of the failures supposed to be due to poor seed are really because of poor soil.

Don't merely re-seed where grass would

not grow before; probably the trouble is with the soil.

Don't plant Kentucky blue grass alone and expect immediate results. In the course of three or four years a good lawn may be secured, but this will be because of a peculiar combination of good soil, proper treatment and favorable weather, which is not likely to occur.

Don't think you can get an English lawn in St. Louis by importing the varieties of grass seed used in England. The thing can't be done.

Don't fail to use a heavy roller (a thousand pounds is not too much) on a new lawn.

Don't cut a young lawn too close. Set the knives of the lawn mower high and keep the grass about two inches above the crown.

Don't top dress with fresh manure. It introduces weeds and is unsightly.

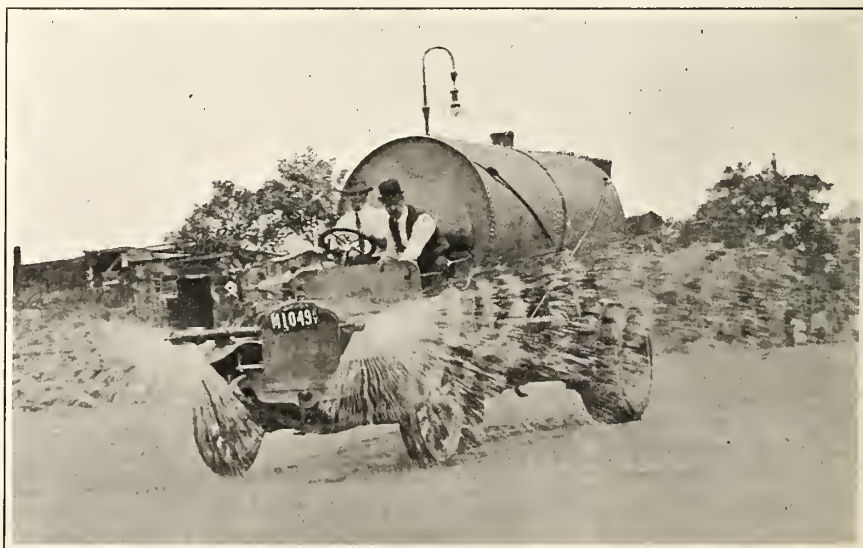
Don't neglect a lawn because it was made right in the first place. Fertilizers are necessary to maintain the grass at its best.

Don't spoil a new lawn with light sprinkling. If water must be added, let it run in a full stream until the soil is thoroughly soaked.

A MOTOR-PUMPED STREET SPRINKLER

In order to provide a wider distribution of water from a street sprinkler a machine has been built which is propelled by a gasoline engine, and which has a double-acting water-pump driven by the motor, says a recent issue of the Scientific American. With this combination the water may be spread over streets 70 to 80 feet wide on a single run. The operation of the pump may be governed to control the area to be sprinkled and to insure a uniform distribution of water. One of the objections to the usual type of horse-drawn sprinklers is the fact that the nozzles are placed at the rear of the vehicle, and do not prevent the

raising of dust by the wheels and horses. In order that the motor truck may not cause the very evil it is designed to cure, the spray nozzles are placed about a foot in advance and on either side of the motor hood. Thus the street is wet down in advance of the wheels and no dust is raised. The sprinkler shown in the engraving has a tank 4½ feet in diameter with a capacity of 1,400 gallons, which is mounted in a cradle and guyed with cross braces upon a 6½-ton chassis. A curious phenomenon may be seen in the illustration. The pulsation of the double-action pump may be clearly observed in the spray of water thrown off from the nozzles.



MOTOR STREET SPRINKLER IN OPERATION.

ASKED AND ANSWERED

An exchange of experience on practical matters by our readers. You are invited to contribute questions and answers to this department

Weathering of Bronze.

Editor MONUMENTAL NEWS: We have a bronze tablet we placed on a cement vault and it has become covered with verdigris once and we sent it back to the manufacturers and they cleaned it and shellacked it and returned it. It has been up about two years the last time and is covered again. Is there anything we can do to remove this verdigris? Is this peculiar to all standard bronze?—J. B. M.

It is to be expected that a cast bronze tablet would become covered with verdigris if put up in a very damp place. Any alloy of copper, whether it be brass, which consists of about 66 per cent copper and the remainder tin and zinc, or standard statuary bronze, consisting of 90 per cent copper and 10 per cent tin and zinc, will form a surface color, called by the French "patine," according to the nature of the chemical applied to the alloy. Thus sulphur fumes and an application of sulphide of potassium will quickly cause a reaction on the surface of the bronze, coloring it a dark brown. Statuary and architectural bronze work exposed to the atmosphere of our cities in which there is much coal smoke quickly turns very dark.

The green coating on bronze is produced by the action of vinegar or sal ammoniac. If the tablet in question has become covered with verdigris it would show that the moisture in the cement vault is impregnated with salts. To many people this surface color, whether it be the brown of statuary bronze or the green color of verdigris, is a distinct advantage from an artistic point of view. For example, the Statue of Liberty in New York harbor has, under the influence of salt air, acquired a beautiful green color. Some practical people, thinking that a corrosion, a result of age, considered it a species of dirt and therefore have invoked the War Department to scrub down "Miss Liberty" to the original bronze color, all of which was most strenuously opposed by those who admire the softening influence of time and atmosphere on monuments, buildings, statuary, etc.

If your correspondent wishes to remove the verdigris from the bronze tablet, simply let him scrub it down with white sea sand and water in which there has been dissolved a small quantity of sulphuric acid. However, perhaps we had better give you a full recipe for cleaning bronze and restoring the oxidized finish. This recipe is as follows:

First, mix potash of lye with hot water. Apply this vigorously with a stiff brush, also using *white sea sand*. Repeat this, rubbing with the potash and sea sand until all dirt and grease is removed; then wash

with clean water and scrub with a "pickle" composed of sulphuric acid (oil of vitriol) and water, one pound of sulphuric acid to a gallon of water. Be sure to pour the acid into the water, and not the water into the acid. This combination will generate considerable heat. Wait until it cools before using. Scrub the tablet with sea sand and water, then scrub with sulphuric acid pickle until all discoloration, green spots, etc., are removed and the natural bronze appears. Wash off the pickle entirely with clean water, then use sea sand freely. The bronze should then be bright and clean, the color of a new cent. Then mix one-half pound of potassium sulphide with one gallon of water. This forms an oxidizing fluid which will stain the bronze to a dark color. If it does not stain quick enough or dark enough, use more of the potassium sulphide. After having made the first application of oxidizing fluid to the bronze a light stain is obtained. This must be well sanded with sea sand and washed with clean water. Repeat the applications of the oxidizing solution and the sanding down of same until the color is brought to a uniform dark tone. It is preferable that the water which is used to wash down the bronze after the application of oxidizing fluid be hot, but cold water will do. Immediately after the oxidizing fluid is applied and a satisfactory bronze color obtained and has been washed with water, use tissue paper to dry off the water. When thoroughly dry go over the bronze with a soft cloth dampened with oil (any kind of oil will do). These solutions are *poison* and should be destroyed when work is completed. Do not get lye or the sulphuric pickle on hands or clothes.

To prevent a recurrence of the staining of the tablet by verdigris, referred to by your correspondent, some little attention should be paid to the bronze from time to time. There is no use of shellacking the bronze or giving it a coat of varnish. It must be rubbed from time to time with an oil dampened cloth. If this is not done the bronze will stain and the above treatment will be necessary to bring it back to a good condition. The statuary in our cities should be scrubbed down with lye and all the surface discoloration, soot, grime and dust removed and rubbed with a soft cloth dampened with oil, but, of course, under no circumstances should the sand be used on the statuary, for this would bring it down to the raw color of the metal. Incidentally, when bronze is set up it seems that it is expected to retain a beautiful color ever after, and, of course, when the sculptor is all through he cannot afford to keep bronzes in condition, and we cannot count on him.

The bronze foundrymen have completed their contrast in casting the work. No attention can be expected from city authorities, and the owners of fine bronze work never think of making an expenditure for proper cleaning and care which should be given the work from time to time.

One of the beauties of bronze is the varied coloring of the surface acquired by exposure to the weather or to chemicals. The natural color of the metal is a reddish golden hue, the color of a new bronze cent. Under the action of the elements this golden color soon darkens by oxidation. If the bronze is exposed to sulphur fumes or to any of the chemical forms of sulphur, it will take on a brownish tint, sometimes so dark as to appear almost black. Thus, in our cities, sulphur in the coal smoke soon turns the statuary practically black. The green color on bronze, sometimes termed "Verd-antique," is brought out by the action of salts, vinegar and sal ammoniac. Bronzes near the seashore, exposed to the salt air, usually are a beautiful green color. An example of this is the Statue of Liberty in New York harbor. These surface colors of bronze are termed by the French "patinas." It matters not how old the bronze, the color is, like "beauty," only "skin-deep." Scratch it ever so lightly and the glowing golden metal shows beneath. Therefore in cleaning old bronzes on monumental work or elsewhere, one should be careful not to abrade or scratch the surface of the bronze. If discolored with an accumulation of dirt, soot and the grime of years, this may be removed with plain soap and water. When dry, the application of a soft cloth dampened with oil will restore the bronze to good condition, and the further application of an oil-dampened cloth at long intervals will bring the bronze finally to a condition where the mellow tones of the surface coloring will delight the connoisseur and lover of bronze work.

WM. DONALD MITCHELL,

Jno. Williams Bronze Foundry.

New York City.

Grass Seed for Hillsides.

"Which is the best grass seed to produce quick results on hillsides?"—J. D. O.

Replying to your correspondent's inquiry, will state that the best seed to sow on side hills is English rye grass, one part, to two parts of blue grass. Sow and rake in, roll and shade with a thin covering of fresh cut grass from the lawn.

WM. SALWAY,

Supt. Spring Grove Cemetery.

Cincinnati, O.

Judging from your correspondent's letter, we should think he would want to use the hillside for lawn or cemetery purposes. At any rate, this should be sown in grass that would not be rough, but would present an even, uniform appearance at most seasons of the year. If the

hillside is unusually steep, we would not advise in its preparation deep plowing, but rather think it would be advisable to cut this up with a disc harrow, running it along the slope of the hill and afterwards harrow with a spike tooth harrow on two occasions, so as to finely pulverize the soil. After this is accomplished we think it would be advisable to sow Blue Ribbon evergreen lawn grass at the rate of from 60 to 80 pounds per acre. This should be done as quickly as possible and within a short time, so as to prevent any rains from washing and causing the ground to settle in the meantime.

After the seed is sown we think it will be advisable to roll this ground so as to have as firm and as compact a seed bed as possible, thereby preventing any seed from remaining uncovered or any rough clods or other unevenness to appear on the surface. We would also advise a good application of pulverized sheep manure,

heat treated, so as to eradicate any growth of weeds which might be contained in the manure. This should be applied at the rate of about a ton per acre.

After the grass has begun to grow and has attained a height of from one-half to one inch, we would advise using nitrate of soda at the rate of 100 pounds per acre. This would cause the grass to take hold and grow very rapidly and form a sod within a very short time. We think it will be necessary to augment and assist the growth of the grass so as to prevent trenches from occurring after rains. A mixture of raw bone and nitrate of soda, four to one, would tend at the same time to hurry the growth of the grass, and its growth would be maintained by the amount of raw bone still in the soil. In fact, we think this would be advisable, rather than an application of nitrate of soda. This mixture should be applied at the rate of about 500 pounds per acre.

If the party does not intend to sow in grass seed except for the purpose of preventing it from bleaching and washing, we suggest the following mixture after the soil has been properly prepared as above. The following mixture should be applied at the rate of 34 pounds per acre and sown any time during the month of April in your section:

10 pounds Kentucky Blue Grass.

4 pounds Red Top.

10 pounds Perennial Rye Grass.

10 pounds English Blue Grass.

This could be fertilized just as the lawn grass and would in a very short time form a sod sufficient to keep the ground from bleaching and washing. This mixture could be secured at very little cost and would serve in the event that an inexpensive sowing was required.

WOOD, STUBBS & Co.

Louisville, Ky.

PRINCIPLES OF LANDSCAPE ARRANGEMENT

*Address before the Massachusetts Horticultural Society,
by Arthur A. Shurtleff, Landscape Architect, of Boston*

A public park or private estate should be accessible readily by road and rail not only to those who are to frequent the land for pleasure purposes, but also to those who furnish labor and material. The public will visit a park which is conveniently situated; a half-mile walk or a five-cent fare cannot be exceeded without grave danger that, as the novelty of the park wears off, pleasure seekers will forsake its precincts altogether. Although the choice of a private estate is involved to a less degree by considerations of distance from the city, the owner must carefully weigh this factor to determine how many hours of his life and how much of his income he will devote to mere traveling. The transportation and cost of labor and of materials are also to be reckoned with as a large item both in the first period of construction and in the final budgets of upkeep.

Breezy northern slopes are desirable for grounds which are to be used only in summer, but for winter enjoyment southern slopes and protection from the wind are essential. In cold weather furnaces and artificial light cannot bring cheer to a building placed on a site deficient in sunlight and unduly exposed to the wind. Likewise, electric fans and awnings are poor makeshifts for the breezes and the shade of trees which afford natural relief from summer heat. The slope of the grounds should not be so steep or so wanting in contour as to prevent the construction of roads of moderate gradient between points of strategic importance. These gradients should be tested carefully with an instrument, not only to learn their steepness, but to make possible the preparation of a general working plan for pleasure and service roads.

The grounds should be carefully examined to discover the presence of rock. If ledge occurs where roads are to be built or cellars excavated, serious items of expense will be involved. The cost of removing ledge is from ten to twenty times that of ordinary earth excavation. Outcrops of ledge which furnish stone for buildings or road foundations, or which add picturesqueness to the landscape, are to be highly prized.

Boundary lines should be free from jogs and offsets, and should embrace all land needed for the development of immediate landscapes, and for the control of distant outlooks. Park margins should be carefully adjusted to the contour of the ground in order to permit the construction of boundary roads of moderate gradient. Such marginal roads not only assist in policing the park, but they insure the orderly development of adjoining private property by forcing the nearest buildings to face rather than to back upon the public land.

The nature of the soil should be studied both upon the surface and at a depth (by means of test pits dug for the purpose) to ascertain its water holding capacity and the size of its aggregate. A sandy or gravelly quality is very precious because it renders possible cheap roads, cheap concrete, dry cellars, and ready sewerage disposal, although, on the other hand, grass and trees may suffer for lack of water in such ground. A heavy clay soil may be endured for its economic uses and for the good grass which it generally produces. The top soil or loam should be deep and a liberal supply of yellow loam should lie beneath it. This combination with adequate rainfall furnishes the mainstay of all

vegetation. Light cultivation under such conditions will bring good soil speedily into bearing, but heavy cultivation extending over a period of years is often required to bring a thin soil into a productive condition. A liberal water supply must be obtainable within easy pumping distance of the building sites and the young plantations. For ordinary economic uses, water should be free from hardness to insure ready solution of plant food and saponification. Drinking water should also be free from organic matter.

Land for public park or private estate should be chosen with consideration of the appearance as well as the condition of its woodlands, meadows, brooks, ponds and fields. These features are the materials of scenery, and they must compose or be capable of composition into landscapes pleasing to the eye. If the land of your choice fulfills all severely practical requirements, and at the same time possesses fine landscapes, your search has been well rewarded, and you may undertake problems of design and construction with the assurance that no unforeseen topographical difficulties can thwart you. Problems of design are difficult in themselves, and they need for their best solution all the initial assistance which topography, soil exposure and landscape can provide. Design should aim to render the territory highly convenient and useful for the special purposes of the park or private estate with the least first cost and with the least cost of maintenance. Good design would miss its aim did it not preserve and create appropriate and attractive landscapes, landscapes in which roads, buildings, fields, woodlands, water, bridges and all other elements enter without affectation to form compositions pleasing to the mind and to the eye.

ROAD and TRAIL BUILDING in the NATIONAL PARKS

(Continued)

*An address before the National Park Conference by
E. A. Keyes, Inspector, Department of the Interior.*

It is my judgment that the width of 16 feet of paved way is sufficient for most of the principal roads in our national parks. At the precipitous points, in order to give the tourists a feeling of more security, an earth shoulder might be added to the outer edge, but where such a point occurs on a maximum grade the grade should be decreased at the dangerous point, and the road elevated at its outer edge upon the same theory that the outer rail of our railroads is elevated.

Theoretically, the shortest radius of curvature permissible on roads depends upon the width of road and upon the maximum length of teams traveling on that particular road and upon the speed of the teams. The length of a 4-horse team and vehicle is ordinarily about 50 feet. To permit such a team to keep upon a 16-foot roadway would require a radius of about 75 feet for the inner edge. In laying out the alignment for the roads in our national parks consideration should be given the maximum length of teams used in that particular park. It is also a good plan where these curves occur on steep grades to decrease the grade on the curves.

The principal requisites of a rock suitable for broken-stone roads are hardness, toughness, cementing or binding power, and its resistance to the wear under the grinding action of wheels. The rock should also be homogeneous in order that the road surface should wear smoothly. The hard, dark-colored, igneous rock commonly called trap rock is probably the best suited as road material, both as to its wearing and cementing qualities. The hard, uniform grained basalt, showing a steel-like fracture and free from gas blows, is probably the best road material to be found in this country. Next in order are the granites, but these vary so widely that many of them are practically worthless as road material. The fine-grained granites have been known to give good results, while the coarse, loose-grained ones are practically worthless as road material.

According to some authorities the gravel of the glacier drift furnishes excellent road-making material, and as a rule the gravel of bluish color will cement together, while the reddish or brown gravel will not. However, so far as I am able to ascertain, this class of material has not been actually used in road construction to any great extent and little is therefore known of its action under traffic.

In the construction of roads in our national parks the problem which will confront the superintendent is not so much what is the best material for road construction, but what is the best available

material on the ground, for this will require a careful study of all available rock in that particular location, and in order to obtain the best material I would not hesitate to change the location of a road in order to make the material accessible to the particular job. It is thought that this is another case which would appear to warrant the necessity of a central office to which the superintendent could refer samples of rock to determine their suitability for road construction.

Some authorities claim that the upper surface should be curved, while others claim that the upper surface should be two planes intersecting at the center of the road and having their angles of intersection slightly rounded off. Both forms are in common use throughout the country, but the first or curved form is probably the most commonly used; both have their ardent advocates. The Massachusetts State Highway Commission has adopted the form of two planes intersecting at the center; while the standard section for the New York state aid roads is curved. The curve usually adopted is not that of a circle, as is generally understood, but that of a parabola. My personal objection to the form of two planes intersecting at the center is, first: After the road is built it gives the appearance of a poor attempt at making a curved surface; in the second place, when the flanks wear a little, to the eye they look sway-backed and at the same time allow water to stand on the surface, which is detrimental to the foundation of the road.

The proper height of crown depends largely on the way of making repairs. If new material is added at long intervals, then the crown should be somewhat greater to compensate the wear, which would take place between repairs, but if the system of continuous repairs is used the crown may be somewhat lower. The transverse slope should be greater on narrow roads than on wide ones to prevent the water from carrying the surface material into the side ditches.

There should be more crown on steep grades than on flat ones, and indeed the crown should be in reality a function of the grade,—that is to say, there is no need of carrying the water to the gutter any faster than to prevent its flowing down the center of the road. In other words, the grade from crown to the gutter should be somewhat larger than the longitudinal grade of the road, and indeed a high velocity from crown to the gutter is undesirable, as it carries too much of the binding material into the gutters, which must be shoveled out, and usually by hand, and

at the same time produces ridges in the road. Another disadvantage of high crown is that in riding over the road, unless the wheels are centered over the crown, the vehicle will ride one-sided, and the occupants be forced against one another, thus making it somewhat uncomfortable. In concluding this subject I would say that in the construction of roads in our national parks I believe a crown of 6 inches would be found to be sufficient. This might, however, be increased to a maximum of perhaps 12 inches upon our maximum grades.

The object of placing a layer of broken stone under the roadway is to secure, first, a smooth, hard surface; second, a water-tight roof, and, third, a rigid stratum which will uniformly distribute the pressure of the wheel over the area of the subgrade so that the bearing power of the soil will not be overtaxed.

The smooth surface and tight roof will depend upon the quantity and quality of the binding material, and the rigidity of the layer depends upon the binder and largely upon the thickness of the stratum. The supporting power of the subgrade depends upon the nature of the soil and particularly upon the drainage. Therefore, for the above reasons the minimum thickness of the broken stone depends upon the nature of the soil, drainage, traffic, and binding material. The initial thickness of the roof depends upon the wear permitted before new material is added. If the repairs are continuous, the initial thickness may be a minimum, but if the repairs are made periodically, that is at intervals, the initial thickness must be equal to the minimum thickness, plus the amount allowed for wear between intervals at which repairs are made. After the road has been worn down three or four inches it is usually so uneven as to require resurfacing, and for this reason it is uneconomical if the road in this stage is much or any thicker than the minimum required to prevent its breaking through.

There has been much discussion, and there is a great deal of difference of opinion, as to what shall be the proper depth of broken stone road. The depth considered necessary by the most extreme advocates of thick roads has decreased with more improved methods of construction, particularly the use of good binder and the advent of the steam roller, and as the advantage of thorough underdrainage has been better understood.

In the early days a depth of from 18 to 24 inches was frequently considered necessary for heavy traffic, while now 6 inches or less is usually considered sufficient. The

Massachusetts State Highway Commission has carried on very extensive experiments to determine the proper thickness of macadam, and from these experiments has derived a formula for determining the thickness, which it is thought unnecessary to reproduce here.

In Massachusetts the thickness of state aid roads varies from 4 to 16 inches, and the standard for crushed stone roads with macadam foundation on well-drained sand or gravel is 6 inches, which the commission concludes is sufficient for ordinary traffic. In New Jersey the depth of macadam varies from 4 to 12 inches, but is generally 6 inches. The advocates of a small thickness of macadam often cite the experiment at Bridgeport, Conn., where some 60 miles of road having only 4 inches of macadam were constructed and gave excellent service, even under heavy traffic, but in this case all the conditions were extremely favorable for a thin road.

For the roads in our national parks I would recommend a minimum thickness of 6 inches of macadam and a maximum of about 9 inches. The thickness, of course, should depend upon the class of rock to be used in the macadam and the class of binder it is possible to obtain, and the proximity of the material to the site. If the best available rock is comparatively soft, and the binder is not as good as it should be, I believe it would be wise to use the maximum thickness in such cases.

In the construction of roads in our national parks I believe that the department should have available in so far as possible standard specifications for construction equipment—such, for example, as standard designs for crushing plants, including the type of crusher, type of screen, and type of bin construction. This data could be sent out to the superintendent, who could remodel them so as to suit their peculiar local conditions. There should be also a standard type of road roller, carts, wagons, etc. After a piece of work in any particular park is completed it might be possible to transfer the construction equipment to one of the nearby parks, provided, of course, the cost of transportation were not too great. There should also be standard plans for highway bridges and culverts.

After a road has been properly constructed and the surface has been made compact and smooth it is very essential that it should always remain in this condition. The general impression is that a stone road is a permanent construction which needs very little attention after it is finally completed, but the best we can do is to approximate an indestructible road; therefore, proper maintenance or upkeep is equally as important as good construction and a system of maintenance whereby every small defect is corrected before it has time to cause serious dam-

age. Among highway engineers there are two general methods of maintenance: First, continuous maintenance; second, periodic maintenance or repairs. In the first system the waste caused by the grinding of the wheels under traffic is supplied gradually as it is worn away and carried

to the gutters by the wind and rains by adding a patch here and there and thus maintaining the full thickness of the road. By the second method the road is permitted to wear thin and then an entire new surface is added.

To be Concluded)



Residents of East Dallas, Tex., recently appeared before the Park Board and offered to advance the money for the purchase of at least five acres of land on Victor and Carroll for an additional park for the city. The monthly report Playgrounds Supervisor Edward A. Werner, of Dallas, for July showed that 2,859 baths were taken and 22,385 admissions to the park were recorded.

Two proposed extensions of Philadelphia's parks and parkway system have been formulated by the City Park Association, which is preparing to urge their development. One of the most interesting proposals which has been made by the association provides for a revision of streets at the intersection of Hartwell avenue and Lincoln drive in order to provide a circular park and to create what is called abroad a "garden city" around this location. The success of this enterprise depends upon the vigor with which the property owners of the affected section enter into the scheme. The other scheme provides for an extension of the Wissahickon drive along Kitchen Creek toward Germantown. This will tap a region not now provided with parks. On the map prepared by the association are also shown a number of playgrounds which are already in use, together with various proposed extensions of the Wissahickon drive which have been advocated by the association from time to time.

The Board of Park Commissioners of San Francisco has voted not to allow the erection of the statue of Father McKinnon which has been executed for a local organization. In arriving at this decision the board was influenced by the opinions of two experts whose advice had been solicited, one being George W. Kellan, sculptor, and the other Edgar A. Matthews, architect. The plaster cast of the statue, which has been on exhibition in the park for some time, will be removed. "I know it is a delicate matter to deny the Father McKinnon statue a place in Golden Gate Park, particularly when it is not much worse than the McKinley monument at the entrance of the Panhandle," writes Mr. Matthews in a letter to W. H. Metson, president of the Board of Park Commissioners, and adds: "However, if the latter is bad it is not sufficient reason for ad-

mitting the former." Matthews says further in his letter to Metson that he thinks no more monuments should be erected in public squares or parks until the United States produces some really great artist or sculptor, and holds the opinion that only buildings of a necessary nature, such as police stations, etc., should be built in public parks, as is the case in Boston. He suggests, however, that the plaster cast of the McKinnon monument be allowed to stand in the park for a period of six months or so, in order to give the public ample opportunity to study it and thus be placed in position to render intelligent judgment as to whether or not the real statue should have a permanent place there. After the board had rejected the McKinnon monument, the following resolution, proposed by Commissioner Curtis H. Lindley, was unanimously passed: "Resolved, That the superintendent of parks be instructed to investigate and report upon the advisability of setting apart an appropriate area within Golden Gate Park wherein there may be placed such statuary, monuments and other works of art as may be tendered to and accepted by the Board of Park Commissioners, and wherein the board may order assembled such monuments and statuary as are now installed in said park, which, in the judgment of said board, should be removed from their present sites."

Residents of Ravenswood and Sheridan Park, Chicago, are signing petitions to the Lincoln Park Commissioners to have a park established in East Ravenswood. It is proposed to buy the block bounded by Clark street, Leland, Ashland and Lawrence avenues.

Charles M. Loring, first president of the Minneapolis Park Board, and for more than half a century active in the work of beautifying that city, recently made a forceful appeal in the *Minneapolis Journal* for more tree planting and gave some excellent practical suggestions to tree planters. "To say that the trees of Minneapolis are worth \$3,000,000," said Mr. Loring, "is putting a conservative estimate on their value. There are about 50,000 trees in the city, and I believe that every one is worth \$60 and some of them are worth much more. A tree planted now at the expense of a few dollars will in ten years be worth \$100 to the

property on which it stands." The trees that Mr. Loring recommends for planting in Minneapolis are the elm, hackberry, white maple, linden or basswood. He said he found that it not only pays to plant trees around a residence, but it is wise to plant them around factory buildings as well. He followed out this principal in beautifying the grounds around a factory which he owns at Rochester, N. Y., and the result has been so surprising that three magazines recently ran illustrated articles describing the factory and the grounds.

New Parks.

The Board of Park Commissioners of Tulsa, Okla., has voted to purchase a 25-acre tract for an additional park and to expend \$18,000 in the improvement of Owens and Central parks, which will be among the most beautiful small parks in the state.

The joint park committee of the city of Pine Bluff, Ark., voted unanimously to accept the proposition of Dr. O. W. Clark and H. I. Holderness to give sixty acres in Eden Park addition, free of charge, to the city for a public park.

Fairfield, Ia., has been presented with a new park, to be known as "Q" Park, to designate the handsome gift to the city by the Burlington railroad of the old Franklin school grounds, comprising nearly a city block.

The State Department at Washington has notified the city of Fulton, N. J., that the city could have the west side of East First street, between the library and Rochester street, for a park and playground.

Freeport, Ill., has purchased for \$29,000 the property known as Krape Park, 82 acres of land adjoining the southwest part of the city and which is one of the most beautiful natural parks in that part of the country.

The village of Hibbing, under the direction of the Park Board, will maintain municipal garden plots on an extensive scale this year. A territory of several acres has been fenced in by the Park Board and divided into garden plots which will be rented to any citizen of Hibbing at the nominal sum of \$1 for the season. One condition only will attach to the lease of these garden plots—they must be worked. If they are not, the lease will be canceled and the plot taken away from the lessee.

The first large contribution to the Springfield, Mo., free park system was made when John C. Dysart, a local real estate man, presented the city with a twelve-acre tract.

Plans for six additional municipal playgrounds, one of which will be for negro children, are being considered by the Park Board of Joplin, Mo.

Colonel James S. Davis, of San Antonio, a former citizen of Waxahachie, Tex., has deeded to the latter town a block of land near the business district for a public playground.

Announcement was recently made at San Angelo, Tex., that through E. P. Ripley, president of the Santa Fe system, San Angelo will receive as a gift from the railroad company a park system costing nearly \$40,000. A committee of citizens has been quietly at work for months acquiring property for the Santa Fe. All of this is now to be deeded to the city of San Angelo to be used for park purposes. The main park is along the North Concho River, a rustic tract of land on the north side of the river, running nearly a mile along it. It contains about fifty acres. Besides this, a block of land has been secured near each of the three ward schools for playgrounds.

From the Park Reports.

The annual report of the Public Parks Board of Winnipeg, Canada, is a handsomely illustrated book of 96 pages that tells of some important improvement work for the past year. The zoo and children's playground in Assiniboine Park proved particularly popular. Fifty-one band concerts were provided in the various parks. These were very popular with the general public, particularly the Sunday afternoon concerts in Assiniboine. The cost was approximately \$5,000. For the first time in the history of Brookside Cemetery, the receipts show an excess over expenditures. The net receipts from all sources amounted to \$9,432 and the expenditures to \$8,700.

The report of the Playgrounds Committee and the Park Commissioners of St. Paul is issued this year as a book of 56 pages, without illustrations, giving a brief account of the year's business in every department. No large improvements were undertaken on the old playgrounds during the summer season of 1912, with the exception of the construction of the wading pool on the Arlington playground. This is the first pool in St. Paul, and one season's use has convinced the committee that it is a most desirable addition to the equipment of any playground. The grading of Sylvan playground was completed in the fall and the Playgrounds Committee reports that two new sites have been purchased within the past year in neighborhoods more central and more congested than any section of the city hitherto reached by the work. The Park Commissioners report that nearly one mile of the Phalen Park lake shore drive was graded. The material needed for this work had for the most part to be dredged out of the lake bottom and the driveway had to be built in and on the margin of the lake at some places through five feet of water, because it was impossible for the board to acquire sufficient land to build the driveway on higher ground. Another particularly important improvement in the Lake Phalen district is the construction of a broad canal connecting Lake Gervais with Lake Phalen.

The third annual report of the Commissioners of the Rockford Park District, Rockford, Ill., contains some interesting de-

tails and pictures of the first annual "City Beautiful Contest" conducted by the Rockford Chamber of Commerce and the Rockford Club co-operating with the Commissioners of Rockford Park District, who furnished the time and services of its superintendent, Mr. Paul Riis, without charge. The prizes were either paid by the Chamber of Commerce or secured from persons interested in the movement. The contest demonstrated very plainly what can be done to improve home surroundings with a little application and encouragement. Entries to the number of three hundred and twenty-five contestants were received, most of whom finished their work. The Park Board has been very conservative during the past year. No new land has been bought and only necessary things have been considered in the activities of construction. In order to enjoy the new Black Hawk Park it was necessary to put in a road and with all the material so close at hand it was decided to construct this road of macadam or crushed stone. This road will be completed at a very low cost and still it is built in the most durable and substantial manner. A comfort house in Sinnissippi Park became a necessity, as large crowds assemble at this park every day. The Nature Study Club, composed of teachers and friends of nature, and the Park Board will co-operate in labeling trees and shrubs in Fair Grounds Park this season. Preparations have been made to attract the birds into the various parks by providing safe nesting places, as advocated by Baron Von Berlepsch of Seebach, Germany.

The twenty-seventh annual report of the Queen Victoria Niagara Falls Park tells not only of the present condition of the various portions of the Park, but also of the plans which have been under the consideration of the Board for some time for the future restoration and development of the unfinished portions. It tells in detail the location and extent of each parcel comprising the entire Park System, and shows the manner in which the sections were acquired or become vested in the Commission. The detailed statements of receipts and expenditures for the year ended December 31, 1912, show that the revenue received from all sources amounted to \$177,617.95, of which, however, \$20,009.61 represented the sale of Debentures and special payment received from the Shipbuilding Company representing that Company's share in the cost of diverting the Boulevard roadway around their manufacturing plant. The fixed rentals of the three power companies amount to \$60,000.00, and the excess rental to \$74,210.41, which latter amounts have been received, as heretofore reported without prejudice to the rights of either party in the suit instituted by the Government to determine the proper method of calculating the amount of power generated and the rental payable therefor.

CEMETERY NOTES

BUFFALO CONVENTION.

The dates of the Buffalo convention of the A. A. C. S., September 17, 18 and 19, fall so close to our press day that members will be either on their way or at Buffalo before this issue reaches them. The program was printed in our August issue and a complete report of the meeting will appear next month.

MISSOURI CEMETERY ASSOCIATION MEETING.

The sixth annual meeting of the Missouri Cemetery Improvement Association was held in Carthage, Mo., August 25 and 26, with the usual attendance.

These meetings are always very interesting and instructive and plans for increasing the membership have been made. So far it has been difficult to obtain the names of those at the head of the cemetery boards in the smaller towns, and during the coming year an endeavor will be made to do this through the commercial clubs or business men's leagues of the different towns.

A representative of the mausoleum company that is contemplating the erection of a mausoleum in the cemetery at Carthage was present and went into the details of their plans with the members present.

J. A. Hardy, Sr., of Webb City, president of the Mount Hope Cemetery Association, read a very interesting paper on Mount Hope Cemetery since its beginning, April 27, 1905. On Tuesday a very profitable half day was spent in inspecting this cemetery. The new superintendent, Mr. O. A. Bruce, will probably become a member of the state association in another year.

Henry Phelps, of Joplin, told of the efforts of some of their citizens to improve and beautify the old city cemetery, Fairview.

A general discussion on the best corner markers for lots, community mausoleums, cemetery lawns, etc., followed.

Oscar McNear, of Columbia, succeeded to the presidency. F. C. Stille, superintendent of Bethania Cemetery, St. Louis, was elected vice-president, and Mrs. Bess R. Parker, Carthage, was re-elected secretary-treasurer.

West Pittston Cemetery, Pittston, Pa., has been making many improvements within the past few years to bring the grounds up to modern standards in every respect. What has made possible the extensive improvements that have been accomplished in recent years was the action of the managers in selling a portion of the coal underlying the cemetery, the money received from which, placed in a trust fund, provides an annual income that has been used

to maintain the system of perpetual care of lots and to make permanent improvements. The most important improvements made under the present management is the construction of the stone retaining wall along the river side of the cemetery property. The steep bank leading to the river for many years made it impossible to use considerable ground north of the Susquehanna avenue drive. For the purpose of reclaiming this strip of land the managers six years ago decided to build a retaining wall along the north side of the cemetery, and this work has just been completed.

Washington Cemetery, Washington, Pa., has recently revised rules and regulations from which we quote as follows:

All vehicles of visitors must be confined to the avenues laid out and open for their use, without getting beyond the outside line of the water-table. No vehicle shall be turned about in any avenue, but every vehicle (whether a horse-drawn vehicle or an automobile) shall continue onward upon any avenue it may be traversing, to the end thereof, or until it turns into an intersecting or connecting avenue. Automobiles must not traverse such of the avenues as shall have thereon signs stating that automobiles are forbidden thereon.

The speed of all vehicles, while in the cemetery, must not exceed six (6) miles per hour. Automobiles, when turning or approaching bends or corners, must slow down, as persons may be hidden from view by shrubbery. That the sorrows of heart-sore relatives and friends of the dead, who shall be in the cemetery, may be respected, the horn must not be sounded unless absolutely necessary.

Automobiles, when meeting a horse or horses, must be kept close to the right-hand side of the avenue; and if the horse or horses indicate fright, the automobile driver must stop and cease chugging until the horse or horses are well past.

On meeting a funeral, automobiles must stop and cease chugging until all the carriages shall have passed; and they must not pass near by a funeral whilst services are being held at the grave.

Automobiles for what is commonly called "joy-riding" shall not be allowed in the cemetery.

Harmony Grove Cemetery, Salem, Mass., has been bothered with some very unsightly specimens of organization flags on the grounds until it became necessary to make some regulation to abate the nuisance. Consequently, at a meeting of the trustees of the Cemetery, held July 16, 1913, it was unanimously voted that no flag or banner, except the American flag, shall be displayed on lots in the Harmony Grove Cemetery.

From the Cemetery Reports.

The report of the cemetery commissioners of New Bedford, Mass., tells of the opening up and developing of the new Pine Grove Cemetery, and the special work of this department has been centered in this ground to such extent as what available finances would allow. With the opening of the season, the superintendent, George H. Nye, placed a large force of men in these grounds; an excavation was made for the pond; a drain laid for the overflow; water mains were laid from Acushnet avenue well

into the grounds; the area leading from the Acushnet avenue entrance to the cemetery proper was dug over its proper depth; all stones removed and the surface partly graded; and to further facilitate the progress of the layout of the grounds, a stone crusher and a ten-ton steam road roller were purchased. One thousand two hundred and fifty-eight feet of macadam have been built during the year and the work of another season will show rapid progress in this line.

In the annual report of Oakland Cemetery, St. Paul, Superintendent F. D. Willis gives the following statistics of the year's work: Sales of lots, \$17,214.40; sales of single graves, \$1,582; special deposits on lots and perpetual care, \$328; on lot contract accounts, \$3,896; perpetual care fund increased from sales of lots and single graves, \$4,808. Expenditures: General improvement, \$1,901.28; sewers and gutters, \$674.19; perpetual care working fund, \$6,749.48; miscellaneous labor, foundations, cases and vaults, \$1,581.40; new land, graded and finished, square feet, 25,884; old land, regraded and finished, square feet, 9,062; interments to October 31, 1911, 18,718; interments during year, 418.

Improvements and Additions.

Woodlawn Cemetery Association, Green Bay, Wis., has made extensive improvements this season, including surfacing of all the roads with crushed stone. A five crypt mausoleum to cost \$25,000 is being erected by one of the lot owners.

Forest Hills Cemetery, Chattanooga, Tenn., is putting in an elaborate up-to-date greenhouse plant, in the process of getting ready for some of the needs of Easter.

Forest Cemetery Association, Gadsden, Ala., has begun the work of parking the cemetery according to plans furnished by George E. Kessler, the landscape architect of St. Louis.

The new entrance gate and driveway and two new granite sidewalks in Oakwood Cemetery, Upper Alton, Ill., have been completed, and the entrance was thrown open recently.

The commissioners of Oakland Cemetery, Little Rock, Ark., are contemplating many improvements at the cemetery, including the erection of a new entrance gate.

Mrs. Linda M. Groh, widow of Prof. Andrew Groh, has made a donation for the construction of a chapel at the Onarga Cemetery, Watseka, Ill. The chapel is to be a memorial to her husband.

At a meeting last night at the Commercial Club of Albany, Ore., a number of citizens organized a cemetery association and elected a board of trustees. Those elected are: F. H. Pfeiffer, L. E. Blain, Fred C. Veal, Mrs. Mabel Simpson and D. P. Bodine.

The Mt. Zion Cemetery Co., Pottstown, Pa., has acquired twenty-one additional acres. A new entrance will be constructed.

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*Preserves Roads
Prevents Dust-*



Forest Lawn Cemetery, Omaha, Nebr. Treated with "Tarvia B."

For Repairs: one Bbl. Per 1,000 Yards in 5 Years

FOREST Lawn Cemetery in Omaha has been using Tarvia for several years to preserve its roadways and prevent dust.

About 20,000 square yards were laid in 1907 and 1908 and exposed to very heavy traffic conditions, the weight of some of the loads (monuments) being from 12 to 20 tons.

Plain macadam would not stand such traffic but the tarviated surfaces remained in perfect condition despite it.

In November, 1912, Supt. Jas. Y. Craig wrote:

Our continual experience with Tarvia has been very satisfactory and our pavement, some of which has been laid five years, is in very good condition and the cost of maintenance has been very small, having used about 20 barrels of "Tarvia B" for resurfacing and repairs.

Note that this has been at the rate of one barrel to a thousand square yards of five-year-old roadway for repairs. It is on such facts as this that we base our statements that Tarvia costs nothing, inasmuch as the saving in maintenance expense more than balances the price of the Tarvia.

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PARK SUPERINTENDENTS in CONVENTION at DENVER

(See report on page 131)



UNUSUAL BRONZE SARCOPHAGUS AND TOMB

The Stephens memorial in Elmwood Cemetery, Detroit, takes the form of an immense bronze sarcophagus crowning a family tomb. The sarcophagus, which was executed by J. Massey Rhind, the New York sculptor, in collaboration with John Scott & Co., architects, of Detroit, is ten feet by four by three and a half, weighing five or six tons, the lid alone about a ton. It is modeled both in very high and in low

relief and mounted on three successive and diminishing granite platforms, the lowest and largest being about 25 feet in length and 20 inches in height. The lid of the sarcophagus is thus about seven feet from the ground. When this lid is lifted the opening to the crypt below, through the center of the monument, is revealed, and through this opening the bodies are lowered into the vault, provided with six recesses at the two ends for the six members

of the family, whose names will appear in the six tablets introduced in the ornament on top of the lid. The medallions on the sides, accessible to the public, bear inscriptions in Latin. With the exception of the lid the sarcophagus was cast in one piece. The sculptor found part of his inspiration in Colleone's tomb in Santa Croce, Florence, but he has transformed the Renaissance theme into one more adapted to our time and place.



BRONZE SARCOPHAGUS AND TOMB IN A DETROIT CEMETERY.



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Cemeteries, Public and Private Grounds
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The Board of Park and Cemetery Commissioners of Saginaw, Mich., has \$2,300 accruing to the Bartlett fund for improving Brady Hill Cemetery.

Rev. A. F. Tonner, pastor of St. Mary's Roman Catholic Church of McKees Rocks, Pa., has purchased ten acres of land adjoining the St. Mary's Cemetery in McKees Rocks for \$6,000.

New Cemeteries.

Crabtree Cemetery Association, Litchfield, Ill.: Incorporators, J. M. Beeson, H. A. Harwood and J. F. Fogleman.

The Wheatland Cemetery Association, Wheatland, Ill., has been organized. James Clow, H. B. Gromman, R. C. Clow and W. D. Broughton are the incorporators.

Clayton South Side Cemetery Association, Clayton, Ill.: Incorporators, Henry Bartlett, A. S. Omer, T. C. Smith.

Greenville Cemetery Association, Greenville, S. C., has been organized with J. Melvin Clark, president and treasurer; W. C. Cleveland of Greenville and W. E. Beckham, of Atlanta, Ga., vice-presidents; J. H. Wiggins, secretary. Randolph B. Bailey, landscape architect, has been engaged to prepare plans.

Riverside Cemetery, one and a quarter miles east of Geneva, Ind., was recently dedicated with appropriate ceremonies.

A cemetery of 14 acres, upon which more than \$100,000 will be spent in improvements alone, will be started at Gary, Ind., it is announced. The entire Frank Gavit farm, two miles east of East Gary, was purchased by a syndicate composed principally of Gary capitalists. Half of the entire site will be known as "Calvary Cemetery" and will be devoted to the Catholic church alone, while the remainder will be non-sectarian and will be known by another name. Those back of the project are: Frank N. Gavit, president of the Gary and Interurban Railroad; James J. Kelley and G. M. Semmes of the real estate firm of Kelley & Morgan, bankers of Gary and Chesterton; F. L. Reynolds, vice president of the Rosehill Cemetery Company of Chicago, and W. W. Wallis, general manager of the Rosehill Cemetery of Chicago.

Eveleth, Minn., has organized a cemetery association with the following officers: J.

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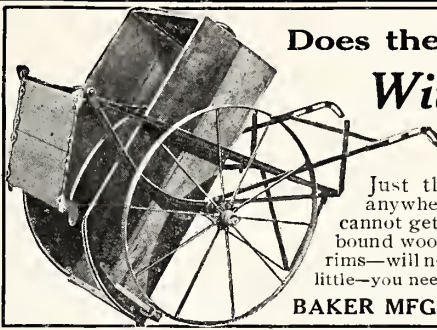
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Dilute with water 30 to 50 parts

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has done can be done by others. We have one agent who sold nearly one car of Red Granite aside from other materials, this spring.

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J. Gleason, president; J. C. Poole, vice president; Solomon Sax, treasurer, and Dr. N. C. Bulkley, secretary. The cemetery site consists of about 13 acres, lying a short distance north of the city.

At a meeting the City Council of Biloxi, Miss., has decided to take immediate steps to open the new cemetery at the naval reserve and will have the twenty acres platted into lots.

Ground has been broken for the new Evergreen Cemetery on the Preston Street Road, Louisville, Ky. The new cemetery comprises 240 acres. All modern ideas will be carried out in laying out the drives and drainage. The officers of the company are: G. A. Ellerkamp, president; Alvis S. Bennett, secretary; Philip E. Allison, treasurer, and John L. Lynn, vice president and general manager.

The Catholic diocese of Buffalo, through Bishop Charles Colton and Monsignor Nelson T. Baker, has purchased a 20 acre plot at Pine Hill, Cheektowaga, N. Y., for an Italian Catholic cemetery. Improvements costing \$25,000 will be started immediately. They will include an ornamental approach to the cemetery, an administration building and a chapel. The contract for the improvements has been given to Edward Jordan of 1964 South Park avenue, Buffalo.

"First Rural Cemetery in America."

In a copy of Howard Evarts Weed's book, "Modern Park Cemeteries," that has just come into my hands I read that "The first rural cemetery of America" was established in 1831 at Boston. If, as the context would seem to indicate, by "rural cemetery" is meant a plot of ground set apart for burial purposes, and more or less remote from the churchyard, although not necessarily outside the geographical limits of the city, Mount Auburn was not the first such cemetery. "The Grove Street Cemetery"—now so-called—antedates it by thirty-four years. In October, 1797, there was incorporated "The Proprietors of the New Burying Ground in New Haven," one of whose first acts was to authorize a committee to "Ornament the grounds with such kinds and so many rows of trees as they shall judge advisable." The first person buried in this cemetery was Martha Townsend, who died November 9, 1797. The moving spirit in the establishment of the "New Burying Ground" was Hon. James Hillhouse, afterwards Member of Congress, United States Senator and President pro tempore of the United States Senate. The foregoing statements are taken from E. E. Atwater's "History of the City of New Haven." Their authenticity and correctness are beyond dispute. If Mount Auburn was the first rural cemetery it is because the old Grove Street Cemetery does not fit the designation and not because of earlier establishment.

THOS. H. SMITH,

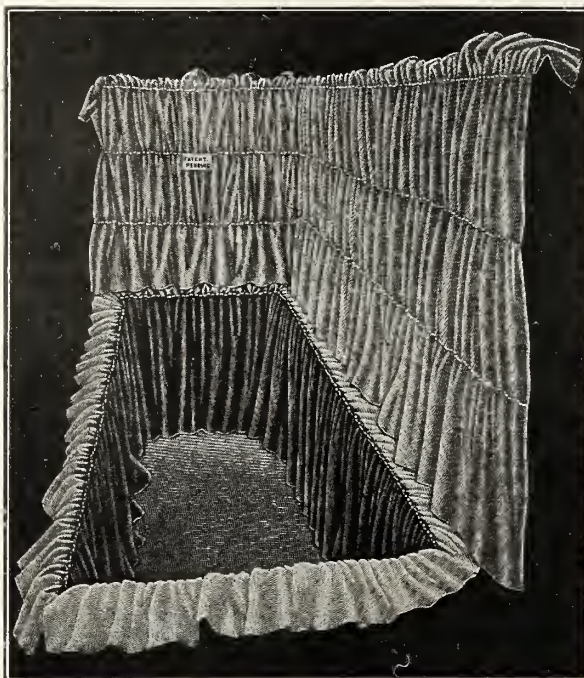
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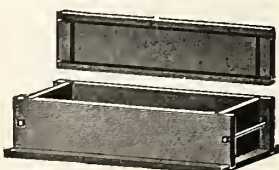
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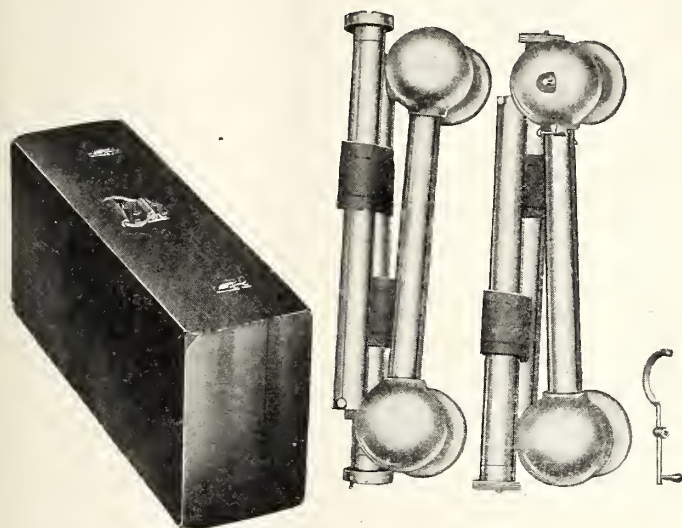
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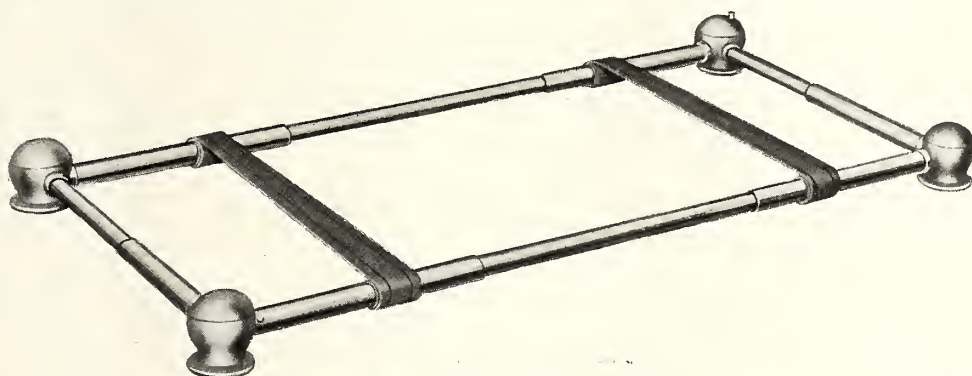
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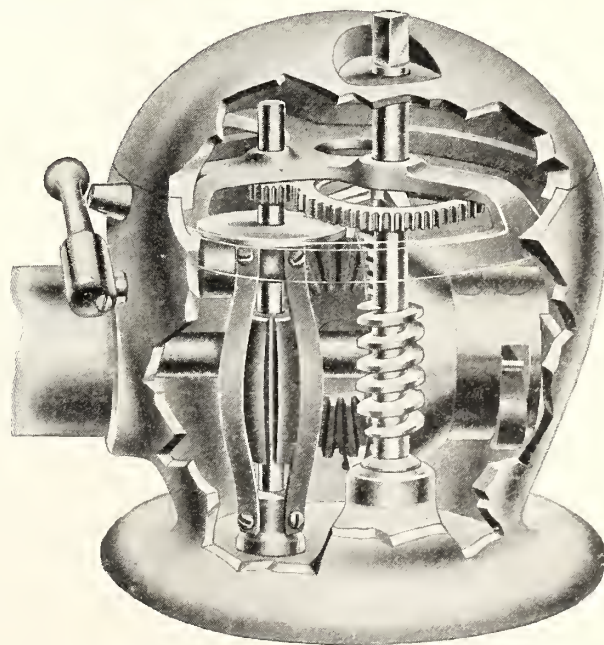
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"SAFETY FIRST" is vital. When with safety, you have dignity in the slow, even descent of the casket into the grave, you have simplicity of operation, ease of control, together with beauty in the design and richness of the finished device—then you surely have a device that helps to reach the ideal in cemetery funeral work.



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PERSONAL MENTION.

Charles Mulford Robinson, of Rochester, N. Y., who is well known as an author and authority on city planning, has been appointed professor of civic design of Illinois University at Urbana, Ill., and has the honor of being the first incumbent of a university chair on that special subject in the country. Courses in civic design have been instituted in many of the universities of Europe, but the University of Illinois is the first American institution to adopt the idea. Mr. Robinson has for many years been recognized as an authority on the subject he is to teach at Urbana. He was one of the first men to make a serious study of the subject when it was taken up by students in this country. He has written several books on Civic study, and his "Modern Civic Art," and "The Improvement of Towns and Cities" are regarded as standard works. He has also made a number of important municipal reports on city planning and civic betterment for cities in different parts of the country. He will still continue this outside work and will still make his home in Rochester, making trips of three or four weeks' duration to the Illinois college, to direct the work of which he is the head.

OBITUARY.

Joseph Sharp, for nearly half a century superintendent of Oakland Cemetery at Princeton, Ill., died recently. All of his life Mr. Sharp has been connected with the work of Oakland Cemetery, first acting as assistant to his father, and for the last forty-nine years having full charge of the silent city. His whole life has centered around Oakland and he devoted the best of his time and thought to making it a most beautiful place. He planted nearly all the trees in the cemetery and witnessed their growth with the keenest enjoyment.

REPORTS AND PUBLICATIONS.

Descriptive booklet of the School of Landscape Architecture of Harvard University, Cambridge, Mass.

"Aphid Pests of Maine; II., The Willow Family"; Bulletin 213 of Maine Agricultural Experiment Station, Orono, Me.

Plan and Handsome, illustrated, descriptive report on Masonic Park on Lake Erie, the Summer Colony of the A. F. and A. M., prepared for the Bar Point Land Co. by T. Glenn Phillips, landscape architect, 26 Broadway, Detroit, Mich.

"Hardy Trees, Shrubs and Plants," handsome illustrated catalog of the A. B. Austin Nursery Co., Downer's Grove, Ill.

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Autumn Planting Circular and 1913 Catalog of Elm City Nursery Co., New Haven, Conn.

August and Fall Planting Booklet, and booklet, "Get Permanent Results by Using American Lilies and Trilliums," from Harlan P. Kelsey, Salem, Mass.

Colored Post Cards, illustrating the entrance to Spring Hill Cemetery, Lynchburg, Va.

"La Cité Jardin," publication of the Garden City Association of France, 167 Rue Montmartre, Paris.

THE COVER ILLUSTRATION.

For our front cover picture this month we show a reproduction from a photograph of an iron fence especially suitable for enclosing cemeteries, public parks and playgrounds. This is a very much "out of the ordinary" design, as will be seen from the illustration, and has the snap and style to it that adds the finishing touch to the beauty, dignity and harmony of cemetery, park or playground. The practical effectiveness of this style will no doubt be greatly admired by the more discriminating cemetery superintendents, park and playground commissioners who want something that is out of the ordinary. This fence can be had in most any height wanted, and with different size pickets, either square or round. The more popular construction is 72 inches high with $\frac{3}{4}$ -inch square pickets, spaced 5 inches on centers. The fence in question is a style made by The Stewart Iron Works Co., of Cincinnati, which is a sufficient guarantee that it is right in construction, in price, design, workmanship and finish. We have often called the attention of our readers to the importance of an iron fence and entrance to a cemetery, and they do not need to be again reminded that the modern cemetery needs a good fence and an impressive entrance. Of equal importance is a suitable iron fence for public parks and especially playgrounds, where the protection of the children is a matter of greatest importance. The Stewart Iron Works Co. claim superiority in the construction of their fence, in which they have embodied several valuable improvements, among which are their three-rib channel rail, adjustable line post, steel and malleable iron foundation base, features that are exclusive with this firm.



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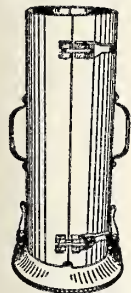
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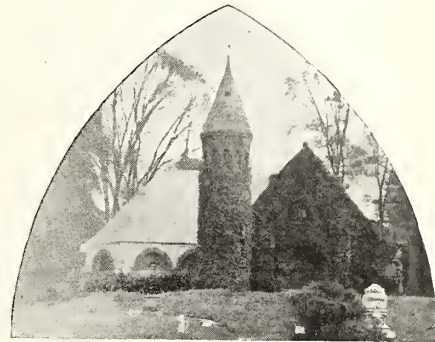
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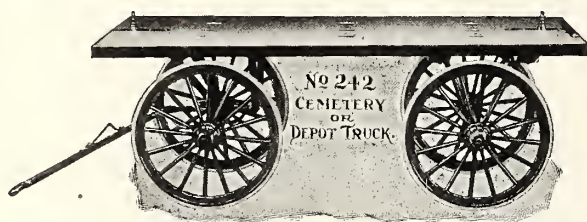
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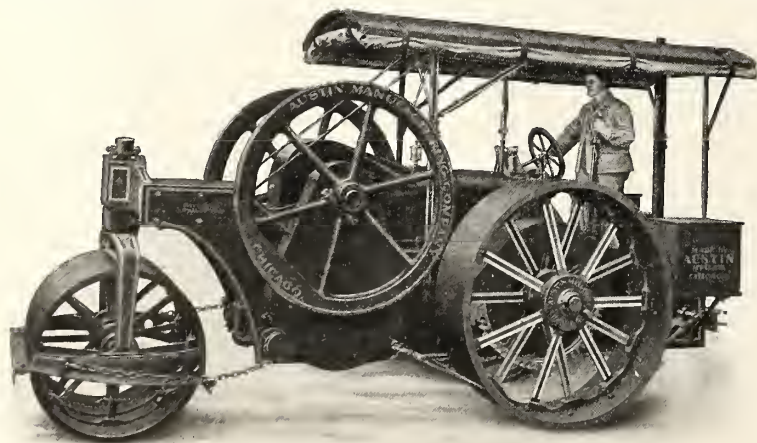
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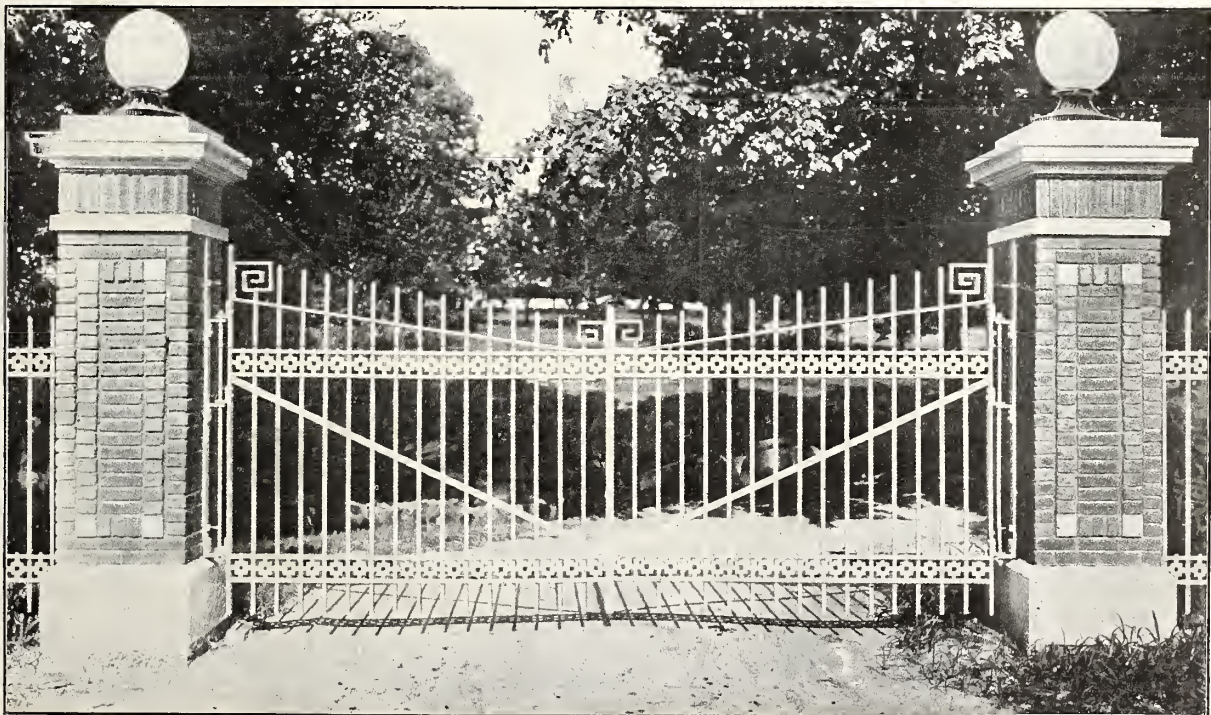
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Vol. XXIII., No. 8 OCTOBER, 1913

PARK AND CEMETERY CONVENTIONS

Reports, Addresses and Discussions from Annual Meetings of American Association of Park Superintendents—Association of American Cemetery Superintendents—Railway Gardening Association—Organization of National Cremation Association.



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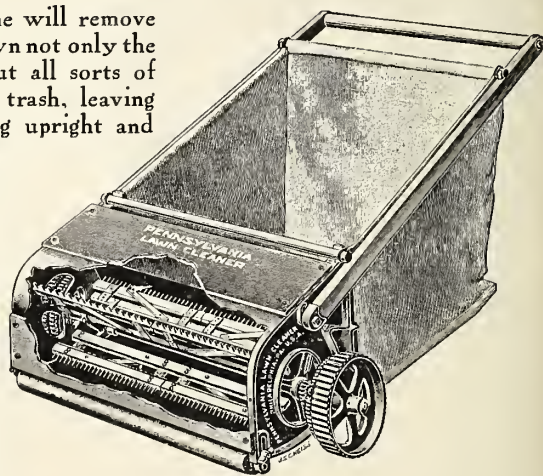
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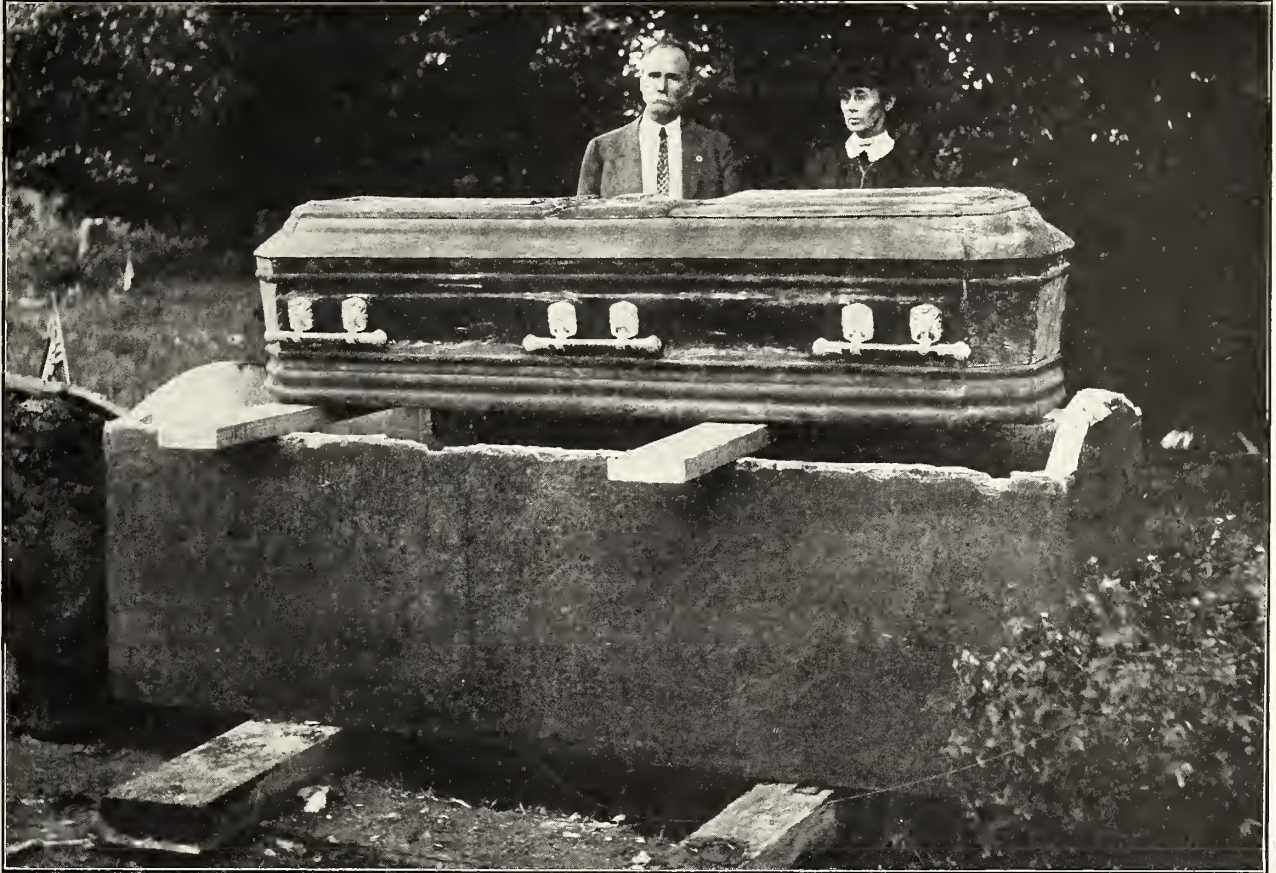
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Arthur J. Graves, the well-known cemetery man of Bloomington, Illinois, has had, in all, 515 "Perfection" vaults within about ten years, and the revenue he has derived from this source alone is not to be despised. Write Mr. Graves and ask him what he thinks of the "Perfection" vault. He will tell you. He buys them by the carload—and, by the way, our carload proposition to cemeteries is really tempting. Don't turn away from this page and forget it. Read it again, then write us for carload prices and terms. It will be a step toward the most satisfactory part of your business. **Write now.**

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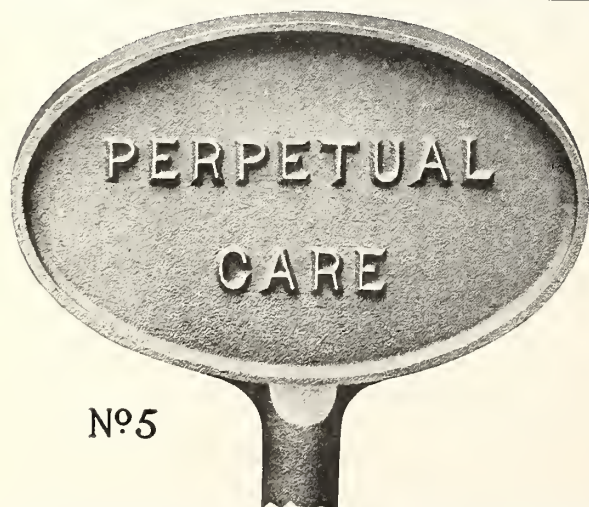
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VOL. XXIII

OCTOBER, 1913

No. 8

EDITORIAL

Local Benefit Taxation for Park Improvements

Not only the validity of the benefit district feature of the park laws of Missouri, under which it is proposed to construct parks and boulevards in St. Joseph, but the similar law in Kansas City, under which a \$25,000,000 park and boulevard system has been built, will be tested in the Supreme Court in the Prospect Park suit filed at St. Joseph. Thomas B. Allen, attorney for Taxpayers' League No. 1, brings the suit in the name of Mrs. Mary Pash, who lives within the benefit district, and whose benefits are placed at more than seven hundred dollars on an assessed valuation of \$1,000. In the decision in the Kansas City-Liberty boulevard case, written by Judge Brown, the point is made that it is unconstitutional to tax land for benefits, without regarding the value of improvements on the land. In other words, if there is a house on a lot, this must be taken into consideration in assessing benefits. It is this point, it is said, which has a direct bearing on the Prospect Park case, for the reason that the law provides that the benefits shall be taxed without taking the improvements into consideration. The jury in the Prospect Park case had no separate valuation for the land within the benefit district, so decided upon a square foot rule, basing the benefits on the number

of square feet in a lot, and further dividing the benefit district into "zones" and taxing the land in different "zones" at different rates. In view of the decision of the Supreme Court, just rendered in the Kansas City case, it is believed by Allen that an important point may be gained by his clients. This entirely new point in the Brown decision, as affecting the park case in St. Joseph, may affect the entire plan of benefit districts for parks. It would not, however, it is said, affect the voting of bonds for parks. The park law as incorporated into the St. Joseph charter from that of Kansas City, provides for benefit districts within the city limits only. The Kansas City-Liberty boulevard case provided for a benefit district in the country. It is said by those who believe the Brown decision will affect local conditions that the same principle declared invalid in the country will be declared invalid in the city in a similar case. The decision under which the Kansas City park and boulevard was upheld was rendered in what is known as the Corrigan case, and in that there were three judges who dissented. While Judge Brown states that he is not trying to overrule that case, he expresses doubt as to the correctness of the Corrigan case.

Better Design In Cemetery Monuments

In an address on the Designing of Monuments before the convention of the National Retail Monument Dealers' Association held at Boston, August 19 to 21, J. Randolph Coolidge, of the Boston Chamber of Commerce, made some excellent suggestions for better designed cemetery memorials. In a series of twelve "don'ts" he called forcible attention to some common errors in monument design. We quote as follows:

1. Don't indulge in broken columns or any other made-to-order ruins.
2. Don't overdo the rock face; it looks too artificial.
3. Don't have the Gates Ajar or any other form of restlessness.
4. Don't use great, heavy pedestals to carry small columns.
5. Don't use miniature columns and pilasters to carry real solid loads.
6. Don't mix the conventional with natural ornament.
7. Don't carve inscriptions on fussy backgrounds. (I know

of an inscription of a great man to a great man on a background of Mexican onyx; each spoils the other.)

8. Don't put a family name and also the initial thereof on the same stone. Most people know that Bean begins with a B.

9. Don't use Gothic lettering with classic details.

10. Don't use classic lettering with Gothic details.

11. Don't use the Boston sign letter or anything like it under any circumstances. Study the lettering as much as all the rest of the designs put together.

12. Don't mistake size for value, or cost for beauty.

The exhibit of cemetery monuments at this convention covered 25,000 square feet of floor space in the Boston Arena and strikingly exemplified the advancement of monumental design. The average of workmanship and design in the monuments here was far in advance of that shown at any previous convention, and this exhibit is one of the most encouraging evidences of the tendency toward higher standards of art in our cemetery memorials.

Editorial Notes

Injunction proceedings against the Northern Ohio Traction and Light Company were filed in the Court of Common Pleas recently at Cleveland by Bernhard J. Schatzinger, 11226 Superior avenue. The action was brought in behalf of the Parkside Cemetery Association and the Country Home Company, both of Bedford Township, and charge that the traction company has appropriated thirty acres of land used as a cemetery and also land used for a home for the aged, built fences around it and threatened to run cars through it. An injunction restraining this proposed action and charging that the land was appropriated through the Cleveland, Bedford and Geauga Lake Traction Company, a dummy corporation, is asked for. The petition also claims that more than 100 bodies are interred in the Parkside Cemetery and that the

cemetery association is prevented from caring for its dead by the traction company.

Political and citizens' organizations of the Second Ward of the Borough of Queens, Brooklyn, N. Y., are reported to have again started a movement to have the next Legislature enact laws to compel cemetery corporations located in Newtown, Long Island, and Flushing sections to pay taxes for local improvements. As the law now exists, cemeteries cannot be taxed or assessed for improvements such as street opening, grading and paving of streets, construction of sewers and the laying and grading of sidewalks. In the last Legislature bills providing for this emergency were introduced, but were killed. The cemetery corporations are organized under the rural cemetery act.

SHRUB PROPAGATION and WINTER CARE of CUTTINGS

*Address Before the Nashville Convention of Railway Gardening Association,
by F. C. Stark, Gardener, Pennsylvania Lines West, Pittsburgh, Pa.*

On this branch of horticulture and the manifold operations in propagating many columns could be written and the subject not described thoroughly, so I will confine my paper to the more simple and economical systems suitable to the small commercial grower, the railroad and home gardeners.

The modes of propagation as described herein may not in every instance be the best known to others but are given, as they have proved best to the writer. There are many kinds of shrubs that are readily propagated of the ripe or mature wood several years old, but with the majority, wood of one season's growth produces roots the more readily. The cuttings are taken in the fall of the year as soon as the leaves of the plants will part from the stems without injury to the buds and general construction of the same. Cuttings of the willow, tamarix or currant and many of the woody plants grow freely at almost any time of the year, while it would be difficult under the most favorable conditions to root hickory. To root cuttings requires time and to insure growth ample time must be allowed for formation of root and callous matter to take place. Consequently cuttings of the mature and dormant wood are usually made late in the autumn. By doing this the propagator secures several months in which to secure the root growth. Cuttings made in the fall should either be planted where they are to be grown, giving plenty of protection, or can be buried in any location where the temperature can be held slightly above freezing although not warm enough to force them into growth. In such situations the process of rooting will go on and should be well supplied with roots by the time the regular season of active vegetation commences in the spring, so that a vigorous early growth of stem will be produced.

In warmer climates it is just as important to give the cuttings plenty of time to form roots or the advance process called callous as in the cold climates. For if the roots are not formed when the leaves expand the cutting is likely to die. Cuttings that are moved from their winter quarters have to be handled with care, especially when calloused and young roots have started to push out. Avoid drying winds, rough handling or long exposure to air even if under shades. These are causes which will surely check further process toward growth. Keep them moist with occasional sprinkling. Success in growing cuttings often depends on texture of soils. The soil should be deeply worked, free from stones and decaying vegetable matter,

should be of a porous nature, and composed of materials which absorb and retain sufficient moisture. In southern, dry and warm climates more powerful absorbents are required than in the cooler northern latitudes. Such hindrances can be eliminated by mulching the surface with coarse hay, straw, spent hops or tan bark. These tend to keep the soil moist and of an equal temperature.

Cuttings should always be severed just below a bud, exposing the wood where roots appear most freely. In this line catalpas, willows and common quince and many others form roots almost anywhere on the stem. Hollow stemmed plants such as *Dentzias*, *Philadelphus*, etc., have large piths and the orifice is nearly or entirely closed. In cutting such plants they should be severed on a slant, exposing the cavity above and below the bud. This allows unabsorbed juices or water to drain away or to be absorbed in the soil. This is done to prevent the cutting from rotting or partial decay. The proper length will vary somewhat according to the character of the plant from which they are to be taken; from 4 to 9 inches in most cases is sufficient. Planting cuttings too deep should be avoided, as the further from the surface the less solar heat they receive. This is quite important to insure rapid growth. Especially after they are well rooted, the surface of the cutting bed should be level, free from stones and should be raked smooth. The cuttings should be planted in a perpendicular position in the trenches from 2 to 6 inches apart, depending of course on size and character of plant. The upper end should be an inch or two above the surface of the soil. Then draw in a little soil and press firmly around the base and then fill the trench level. Firming the soil around the lower end of the cutting is very essential and in a good many instances is the whole secret of success in the growing of cuttings. The distance between the rows should be wide enough to work with the hoe and wider if they are to be worked with the cultivator.

This mode of propagating can be employed with the majority of shrubs used in gardening of the present day, *Viburnums*, *Hydrangeas*, *Tamarix*, *Philadelphus*, *Loniceras*, *Altheas*, *Barberry*, *Sambucus*, *Quince*, *Prunus*, *Spireas*, *Deutzias*, *Lilacs* and a hundred other varieties.

When propagating with soft immature growth customs differ, as here we handle an active growth under changed climatic conditions under advanced season of time. Before the rooting and further advance of growth in the cutting of immature struc-

ture and conditional development must be assisted, necessarily by resorting to artificial means, thereby accelerating the change. The growing parts of the plants are now in a state of transmutation, cell matter forming over into outward maturity. To continue this change is to surround the cutting with a warm moist atmosphere, so that the exhalation can be controlled. By exposure to cold air such is impossible. Therefore some means must be provided to give this protection, such as properly constructed cold frames or earth houses. This mode of propaganda must be done under glass. Overheating in extremely hot weather can be controlled by shading with wooden shading frames. In cloudy weather these can be removed and sufficient light be allowed, but not long enough to cause injury or to render the cuttings into a wilting condition. Direct sun rays are the essential factor which stimulate the cellular action, assimilation of unorganized substances, atmospheric or geological, yet cannot be given as they are to rooted plants under natural growing conditions. Therefore shading with lattice frames, should be given the preference over lime or other washes.

Soft cuttings should be rooted in pure sand or some soil of a very sandy texture in preference to any other kind. In fact sand is the only known material to secure a healthy growth. It stimulates the tendency for the formation of fibrous roots in abundance. This fact is well known among all florists and nurserymen. Arrangements for ventilating the house or cold frames should be provided from the top or peak of the roof. Care should be taken to keep the temperature at a safe point, as too much heat will check the advancement of growth in the cuttings.

Make your cuttings carefully. A sharp knife should be used, as the cuts should be smooth. This enables the grower to eliminate failure to a very great extent. This means of propagating can be resorted to with the majority of plants, yet from the economical standpoint it is easier to multiply the raising of many varieties of shrubs by seed. To go into the many other processes would require too much time; to describe the many other methods of propagating as by layer, which is employed in rare plants; propagation by root cutting; propagation by division, widely used with perennials; propagation by budding as is done with ornamental and shade trees; and finally the many modes of grafting, the latter very little used any more except on stacks as base for ornamental shade trees, as in nearly all forms of willow, ash, elm, mulberry and many more.

CONSTRUCTION and MATERIAL for CEMETERY ROADS

Address before the Buffalo Convention of the Association of Cemetery Superintendents, by M. P. Brazill.

The subject of laying out and constructing roads has been discussed by scientific men and by men of little or no scientific education for centuries; the result is that a great deal of repetition has been indulged in. This is going on at the present day, as is evidenced in our organization as well as elsewhere. Several papers have been written by our members and read at our conventions. All of these papers have been of a practical character, written by some of our most experienced members.

There is a delicacy of entering into this subject as well as other subjects previously discussed because of this necessary repetition. Yet repetition is going on in the discussion of all subjects, while some new lights and improvements also are being introduced as is natural in a progressive age and a progressive people like ours. The subject of road making and good roads is kept constantly before the public, as it is one of the great needs towards the development of our almost unlimited resources.

It is not my intention to go into the construction of cemetery roads in detail, nor is it my intention to instruct or suggest any plan or method to our older members. The few remarks I intend to make will apply to our younger and new members who may not have much experience in the construction of roads.

The expediency of utilizing whatever material is nearest at hand, most convenient and cheapest, is the aim of this paper.

The construction of roads is controlled almost entirely by location and other circumstances, especially by the material at hand and the means to procure it.

There are various kinds of material and modes of construction recommended by engineers and others having charge of road making. I might mention a few, such as granite blocks, trap rock, vitrified brick, wood blocks chemically treated with oil and asphalt; these are mostly used in the city streets and avenues, on foundations of concrete; but these are not necessary in the construction of cemetery roads, as the latter have only a small fraction of the traffic that city streets are subject to, and must be prepared for heavy traffic. Much lighter material for the construction of cemetery roads will meet the requirements very well, such as broken stone, gravel, slag, cinders and refuse from mines and refining mills. Two conditions in the con-

struction of cemetery roads must be kept well in view; a good foundation, and a binding smooth surfacing.

The foundation of a roadway is as necessary to it as the wide footing course or the concrete foundation is to a wall. If omitted from the construction, almost any traffic, especially heavy traffic, will break through, causing unsightly ruts in the early spring, when the frost is getting out of the ground.

Next is a smooth, hard surfacing to make a good finish. Where sand and gravel are easily obtainable they make a good top dressing, when well rolled. Fine macadam from limestone, trap rock or granite, especially the last two mentioned; or refuse from mines or refining mills make a fine durable surface when well rolled. Gravel or sand is very difficult to pack on account of its round, hard, smooth surface. To pack this surface material together, tar and oil, with a large percentage of asphalt has been used with success. I find oil with asphalt an excellent substance for forming the surface of roads either old or new. The oil penetrates the surface for a few inches, making a compact mass, and after a few applications it forms a crust-like asphalt; besides it is a most effective weed killer. I have never seen weeds appear on a road after oil has been used. I do not think that oil will be used very extensively in our cemeteries, as it is subject to some objections. For the first week or two it is disagreeable to pedestrians, and even to carriages, on account of its odor, and it sticks to the wheels occasionally. To obviate this, small piles of sand are placed along the roads, to cover the oil after it is applied; this is considered effective and after a short time the disagreeable features disappear. But the great majority of our cemeteries will not need it as the traffic is not sufficient to require this kind of treatment. In the much traveled roads of cemeteries having heavy traffic for funerals, etc., this treatment might be recommended. It is used to a great extent in all our park roads and boulevards in St. Louis, and with very great success. We have used it at Calvary Cemetery and have every reason to be pleased with the result. It prevents dust, makes a fine smooth surface and banishes weeds.

As all of our cemeteries are not equally blessed with a replete treasury, it may be well to suggest some economic plan for using cheap and convenient material in the construction of roads for the smaller and less favored

cemeteries. Those with ample funds and heavy traffic can be depended on to take care of themselves and indulge in any of the more modern styles of construction.

Cinders with slag and other refuse from rolling mills and factories, are used to advantage in localities where they can be obtained. Cinders are very unfriendly to vegetation, and thus decrease the propagation of weeds, which is quite a consideration on roads not much traveled. The refuse from mines and refining mills is also used to good advantage as it makes a good surface packing for all cemetery roads.

Along the seacoast we find shells and sand used in construction; they are usually called shell-roads.

The discussion on surface binding material is very general, and commercial firms having something to sell are deeply interested in these results, and leave no opportunity pass to call our attention to their superior material for road surfacing and weed killing. As I have had very little experience in some of these much advertised materials, I will leave the subject to others who have had such experience.

As I said before, I think oil with a good percentage of asphalt, one of the best and cheapest of surface binders. It can be applied to an old or a new road equally for its better improvement.

Road construction has been treated at some length and very professionally by Mr. Howard Evarts Weed in his book, "Modern Park Cemeteries," and published by R. J. Haight. I would recommend it to our members as a useful textbook.

Mr. Troup, of Buffalo, has treated the subject of road construction at considerable length in a paper written for our Boston Convention in 1890. He gives the English plan as recommended by the English engineers, Macadam and Telford. Mr. Telford's plan is most generally used in this country, and bears the name of Telford Roads.

I prepared a paper for the Baltimore Convention in 1892 on "Location, Construction and Drainage of Roads in Cemeteries." These two papers were published in our book "Modern Cemeteries," with two others by Mr. Simonds and Mr. Lovering. I would recommend the study of these papers to our young members as they contain many useful hints.

MATTHEW P. BRAZILL.

Supt. Calvary Cemetery, St. Louis.

OFFICIAL COMMUNICATIONS

H. S. RICHARDS, Chicago, President



AND CONTRIBUTIONS

J. J. LEVISON, Brooklyn, N.Y., Sec.-Treas.

THE ASSOCIATION QUESTION BOX

The following questions were placed before the association at the Denver meeting, but there was not sufficient time to discuss them in full.

Members are invited to contribute as fully and freely as possible of their experiences and opinions on any of these subjects for publication in this department. Communications should be sent to Secretary Levison.

1. What is the best surface for playgrounds?
2. Where can we obtain 1½-inch to 3-inch posts or trees for making rustic fences or barricades?
3. What is the best method of disposing of waste paper scattered around parks, when from ten to twenty wagon loads are gathered up daily?
4. What is the best kind of clay for making tennis courts?

5. What is the best material for marking grass tennis courts so as to prevent burning or otherwise killing the grass?

6. What has been learned about crematories for burning park rubbish?

7. What materials make the best walk surfaces?

8. About lawn-guards along walks?

9. Methods of lawn sprinkling, as to equipment, force of men sprinkling, etc.?

10. As to drinking fountains,—should they be constantly running? As to icing, etc.?

11. How often should a lawn be cut to keep it in the best possible condition? Can lawns be kept in first class shape if cut often and *not raked*? H. S. RICHARDS, Chicago, Ill.

12. What are the working hours and wages paid to park laborers?

13. How does gas kill the trees?

ing plants are common at an elevation of 10,000 feet up to the timber line: *Pinus aristata*, *Picea Engelmannii*, *Juniperus Sibirica*, *Salix glaucops*, *Salix chlorophylla*, *Betula glandulosa*, *Dasiphora fruticosa*, *Aquilegia saximontana*, *Phacelia sericea*, *Castilleja Haydenii*, *Pyrola clorantha*, *Polemonium pulcherrimum* and *Polemonium Mollitum*. From 8,500 to 10,000 feet are found a much greater variety of trees and shrubs; prominent among these are: *Pinus scopulorum*, *Pinus flexilis*, *Picea pungens*, *Pseudotsuga mucronata*, *Populus tremuloides*, *Jamesia Americana*, *Ribes luteum*, *Arctostaphylos uva-ursi*, and *Sambucus microbotrys* intermingled with a large number of brilliant flowered vines and herbs.

The mountain sides and meadows were covered in places with masses of purple and white Asters, Blue Gentians, Yellow Golden Rods and Senecios, and red *Castillejas*, beautiful and brilliant beyond description. The memory of those tours spent with congenial friends in the midst of these mountains will long remain as an inspiration for our work of education and beautification.

L. P. JENSEN.

St. Louis.

ECHOES OF THE DENVER MEETING

Many of the members who attended the Denver convention prolonged their stay after the meeting to make a further study of Denver's great mountain park system, and of the wonders of the Rocky Mountain flora and scenery.

Mr. L. P. Jensen, of St. Louis, was one of the party who stayed long enough to take some excellent snapshots and make some careful observations on the trees and shrubs of the mountains. The following notes and pictures by Mr. Jensen will recall interesting scenes to those who visited the convention:

After the Denver convention many of the members remained to take advantage of the many excellent opportunities offered for the study of mountain scenery and native plants of the Rockies. The wilderness parks of Colorado Springs were of special interest to the ones interested in the preservation of our native plants. Every city and every state ought to have reservations devoted entirely to the native plants of that particular section, for the benefit and enjoyment of future generations.

Glen Eyre, the home of the late General Palmer, was opened for our inspection, and its natural beauties were a revelation to all of us.

The study of the limitation of plant growth on Pike's Peak was of particular interest. The timber line is at about 11,500 feet, above which is found only a low vegetation, with brilliant flowers. The follow-



SNAP SHOTS OF THE DENVER CONVENTION; TAKEN BY L. P. JENSEN. Upper picture at left: Some of the visitors in the garden at Glen Eyre; lower picture, Glen Eyre, Residence of General Palmer; upper picture at right, in the Garden of the Gods; lower picture, some of the ladies on Lookout Mountain: Mrs. Burke, of Pittsburg; Mrs. Jensen, of St. Louis; Mrs. Brubeck, of Terre Haute, Ind.; and Mrs. Evans, of Youngstown, O.

PLAYGROUND and RECREATION FACILITIES and their MANAGEMENT

By Edward B. De Groot, General Secretary, Playground Association of Chicago. Formerly Superintendent of Playgrounds and Sports, South Park Commission, Chicago; Address given at the Fifteenth Annual Meeting of the American Association of Park Superintendents, Denver, Colo., August 25.

It is my purpose to treat the subject of Playground and Recreation Facilities and their Management in the light of the comparatively new and increasing interest in the public playground and recreation center movement. In this treatment I shall not lose sight of the fact that park organizations have been leaders and not followers in certain aspects of this movement.

In this country the park board of Boston was the first to establish public outdoor gymnasia for boys, girls, men and women, the San Francisco park board the first to devise the children's playground, and the South Park Board, of Chicago, the first to develop the inclusive recreation center. Playground propaganda and the organization of playground associations, which now seem to be shaping the ideas of the American people respecting play and recreation, have followed and not led the work of park boards in providing play and recreation facilities.

But the new and more precise expressions found in the country-wide playground movement have introduced new problems in park planning, organization, maintenance and operation with which the superintendent must cope successfully or suffer the stigma "back number." It has now become necessary for the park superintendent to add to his functions as horticulturist, engineer, master mechanic, architect, landscape expert, art critic, police magistrate, diplomat and keeper of the zoo, the function of "Captain of the Leisure Time Pursuits of the People." In other words, the park superintendent must not only know what the people wish to *see* in parks, but he must now know what they wish to *do* in parks. Also, why and how they wish to do certain things in a certain manner, just as he has always known why people wish to see certain things.

In this situation the technique of the playground is to be placed along side of the science of engineering, the canons of art and the laws of landscape development. Poor and inadequate playgrounds are no more to be tolerated than the abuse of color, violation of the laws of composition, or the absence of esthetic virtues in park planning.

That the modern playground movement has injected itself quite generally into park organizations is shown by the following statistics, gathered by the Playground and Recreation Association of America.

"In 33 cities playground and recreation centers were (Nov. 1, 1912) maintained by

playground or recreation commissions, in 51 by playground associations, in 11 by playground associations in combination with other organizations, in 35 by school boards, in 33 by park boards, in 9 by park and school boards in combination, in 5 by park commissions and playground commissions, in 11 by park boards in combination with other organizations—a total of 58 park boards involved. These records show that there are more park boards involved in the playground movement than any other single public agency.

It may here be observed that the effect of the newer playground movement upon park boards has been both good and bad.

In one of the most famous park organizations in this country, the incorporation and expression of the playground idea led to long and bitter misunderstandings among members of the board and the elimination, with attempted discredit, of one and perhaps two of the members. Misunderstandings and personal jealousies among heads of departments and the superintendent, and constant bickering and cross purposes in operation followed the bad pace set by the board members. In another park organization the introduction of the playground idea put new and harmonious life into all of the members of the board, fired the superintendent with new zeal, and made both the workers in the operating force and the members of the board happy and proud in the new venture. In one case there was a relative overdevelopment of the playground idea without an adequate plan and organization to carry it, and consequent overshadowing of an old and praiseworthy *park* work that amounted to the "dog being wagged by the tail." Hydrophobia in the organization was of course, inevitable. In the case of the other park organization there was a very subordinate and bolstering development in the introduction of the playground which enabled the "dog to wag the tail" in a new manner, and thus carry off the blue ribbon for superior park development. In either case the acid test of public service and approval was so favorable that organization failures and even success were lost sight of. In this connection it ought to be observed by all park organizations that the onward rush of the new playground ideas may be open to attack for "exceeding the speed limit" but that the public will not listen to charges of "reckless driving."

A classification or grouping of the traditional and newer recreation interests will

not only aid us in detail study, but will help us in shaping policies and attitude toward the problems of recreation under the management of park boards.

With sufficient funds available there have been few questions in any park board as to the extent to which a superintendent might go in making a park a passive recreation center. Things which have aided people in their pursuit of recreation taken in walks, drives, through the eye, prone upon the grass or seated upon a bench have been supplied abundantly. On the other hand, every park superintendent has felt the difficulty of determining where to begin and where to end in making a park an active recreation center. Things and plans which have aided people in their pursuit of recreation through *motor expression* have not been supplied except in a comparatively limited manner. Questions of park composition, landscape effects and artistic expression have not governed this situation so much as the attitude of park boards and superintendents themselves. The South Park Commission of Chicago has set the pace for the entire country in developing a new kind of park which has retained as much as possible of the traditional park treatment, but with the very maximum of facilities for motor expression in recreation as the motive. In other words in the South Park plan there has been unique assembling of modern recreation facilities which have been given a park-like setting. But the South Park Board is still asking the question how far it should go in this matter and whether it has not already gone too far as a *park board*.

Four groups of interests, requiring different kinds of equipment and somewhat different management, may be noted.

Group One: Sports of the Seasons—(a) Ice and snow sports, such as skating, tobogganing, hockey, ice boating, etc. (b) Water sports, such as rowing, sailing, motoring, canoeing, fishing, lake, river and ocean bathing. (c) Miscellaneous sports, such as fly and bait casting, archery, equestrian sports, bicycling, camps, picnics, etc.

Group Two: Traditional Games—Baseball, Rugby football, soccer football, golf, tennis, roque, lacrosse, cricket, etc.

Group Three: Traditional Track and Field Athletics—Running upon a cinder track, high jump, pole vault, broad jump, shot put, discus and hammer throwing, hurdle racing, etc.

Group Four: The Modern Directed Playground—Gymnastic and play apparatus,

sand bins, wading pools, modified baseball, volley ball, basket ball, hand ball, quoits, swimming pools, field houses containing halls, club rooms, gymnasiums, bathing and dressing quarters, etc.

In the detail study, which must now engage our attention, let us eliminate the first group as being somewhat remote from the main theme of this paper. To hurry on to a consideration of the more immediate problems of the park superintendent is our chief purpose here.

Referring to Group Two: In providing facilities for traditional games the best orientation possible should be given each play area. Football fields and tennis courts should be laid out with the long axis of the playing sections running north and south. Baseball diamonds should, according to the majority of players and "fans," be given a north and south arrangement, with a slight removal of second base eastward. With this orientation, the batter would face north and slightly east. Golf courses require areas of forty to sixty acres for nine holes and eighty to one hundred and fifty acres for eighteen holes of level or rolling land for satisfactory golf playing. Back stops for baseball diamonds are unsightly in large open parks and for that reason are not to be recommended, but in small parks or playgrounds wire guards twelve feet high, extending from twenty feet behind the home base down the first and third base lines to a point ten feet beyond and fifteen feet back of either base, are recommended. Only by the introduction of such a system of guards may baseball be played in small areas with any degree of safety. Tennis courts with back stops delight the players, but without back stops cause much wrath. In large open areas the tennis back stop is almost as offensive as the baseball back stop. Net stops attached to portable posts meet this situation. They should be removed as soon as the play ceases. In secluded areas permanent back stops with vines grown upon them are recommended.

The management of these facilities will often be determined by local conditions. Some general rules, however, may be advanced. Assignment of baseball diamonds, tennis courts and football fields, also starting upon the golf course, should be managed on a basis of "first come, first served." If the process must be governed by permits or tickets, the system of distribution should commend itself because of the inability of anyone to secure favors, graft or slip by. The principle of "first come first served" must be carried out in open, honest and unerring manner in the use of ticket and permit. The sale or huckstering of tickets must be guarded against in no uncertain manner. Gambling upon the result of games on the part of players and spectators should be discouraged in every possible manner. Wrangling among players and be-

tween players, umpire, referee or other officials should be guarded against. Gambling upon the games is almost always the basic cause of wrangling among players, spectators and officials. The exclusive use by clubs and organizations of game facilities should be prohibited except upon special occasions. Tennis nets and baseball bases should be provided by park authorities. Golf course caddies should be controlled by park authorities in their charge for service, and in their "finding" of and selling golf balls. The use of public park games facilities by individuals, teams and groups in an effort to advertise the wares of a business house, factory, or what not, should be prohibited. This is often attempted in the use of banners, extensively lettered uniforms and the distribution of programs, score cards, schedule of games, etc., with much advertising matter printed thereon. It goes without saying that public property should not be used for the private business advancement and financial gain of any member or group of members of any community. Only lax management of public recreation facilities will permit this form of graft.

Games facilities, such as baseball, football, golf and tennis, have their value greatly enhanced when accessory facilities, such as toilet rooms, dressing and bathing quarters, are provided near by. But these accessories are only an aggravation to the public and a source of disorder when poorly planned, neglected in upkeep and inadequately managed. All that has been said above concerning "first come first served" and the handling of permits and tickets applies to the management of accessory facilities just enumerated.

Referring to Group Three: In urban public parks and in all playgrounds of comparatively small area, hammer and discus throwing should be eliminated from the program of facilities and activities. If track and field athletics are treated as directed sports (under a play leader employed by the park board) revolver with blank cartridges, fifty-foot tape line and balls of yarn for finish line in running races should be placed in the custody of the leader. The leader should provide himself with a stop watch at his own expense. If provided with this tool at the expense of the park board it will always be out of order. The orientation of the running track is best with the long axis north and south, and the straight-away on the west side. A quarter-mile track with a 220-yard straight-away represents an ideal arrangement. If a smaller track is developed it should have at least 120 yards straight-away on one side. The start and finish marks of 100 yards, 120 yards, 220 yards, 440 yards, 880 yards and one mile should be permanently marked with stakes, cement or wood posts. Stakes should also mark the points where hurdles are to be stationed in the 120 and 220-yard races. It is de-

sirable that all distance marks above 220 yards end at the same point. An ideal width for running tracks is 20 feet 6 inches for the straight-away and 14 feet 6 inches on the opposite side and on the turns. The shot-put area should be guarded on either side with barriers to prevent thoughtless persons passing within range of the fall of the shot. If poles for vaulting and cross-bars for high jump are provided they should be bamboo, because of their greater safety over any other wood that might be supplied.

The management of the running track and its accompanying facilities is a comparatively simple matter except in times of athletic tournaments and contests. Under general conditions the regular digging and softening of the ground in front of jump and pole vault posts, the sprinkling, rolling and marking of the running track, and guarding against abuses of facilities will constitute good management. Use of these facilities will usually be made by school, college, Y. M. C. A., church, settlement and athletic club individuals, teams and groups under direction of their own coaches or trainers. At times of athletic tournaments and contests spectators should be kept off the track and out of the track enclosure. A sufficient number of guards and officers should be provided to hold and control the spectators under any conditions. It should be the function of one of the park officials to see that the regular number and proper character of officials are present and in actual control of the events. If the running track and its accompanying facilities are part of an intensive playground scheme, additional features of management should be provided. Of this we shall speak later.

Referring to Group Four: It is this group of facilities and their management that has played havoc in recent years with customs and traditions in park planning, maintenance and operation. This is true because suddenly, and with swiftness, we have turned from the basis of a few recreation facilities upon large areas to a great many recreation facilities upon small areas, and from custodial methods of management to intensive methods of leadership, direction and instruction. The change from "farming" to "intensive agriculture," with all that that saying implies, is hardly a circumstance when compared with the recent demand for change in park recreation facilities and their management.

In working with small areas and many facilities for active play and recreation, the first thing to be done is to divide the total area into two or three parts. The best arrangement is a certain area for the exclusive use of small children (boys and girls together) up to nine or ten years of age; a second area for girls exclusively above ten years of age, and a third area for the exclusive use of boys above nine or ten years of age.

These separate areas may be reduced to two by combining the girls' and children's playgrounds. If the girls and children do not occupy the same play space, but separate areas, they should be divided by a line or fence which makes possible ready communication, one with the other, in order to effect economy in supervision. The reason for separate areas is based upon the sociological and psychological differences in play instincts and tendencies among boys and girls. The play interests of boys and girls are common interests, in the main, up to eight, nine or ten years of age. But at the age of ten, or a year or two earlier, there is a parting of the ways. Boys then demand areas and equipment apart from girls and "babies," and girls seem unable to work out their play interests in a satisfactory manner when little boys and girls are "under foot" or not "entirely out of the way."

After the question of areas is settled, the next problem for solution is that of a satisfactory surface upon which to play and work out the various activities common to the modern playground. The precise problems are these: absence of dust, rapid drainage, smoothness, surface pleasing to the eye, not too hard and not too soft, free of cutting and scratching qualities. A convex instead of a concave grade has been found to solve the drainage problem. Torpedo sand upon block or clay loam, when sprinkled with water or light oil, has been found to eliminate dust without making mud. Torpedo sand has less scratching and cutting qualities than cinder, but supplies enough friction to rapidly wear out balls and other leather and cloth covered apparatus common to the average playground. Gullies and pockets in the surface of the playground may be eliminated by the use of creosoted blocks, hardwood planking or cement when use of apparatus is the cause of breaking the surface. The matter of a perfectly satisfactory surface for a small area extensively used daily by vast numbers of children and young people, like the poor, is always with us, and will remain with us until some park man discovers a good composition formula. Mr. Harry S. Richards, superintendent of maintenance, South Park Commission, Chicago, has produced what seems to me to be the best playground surface that has yet been tried. It is especially good for tennis courts and small areas which must withstand hard and constant use. Mr. Richards proceeded as follows:

He excavated carefully with reference to character of sub-soil in an effort to secure good drainage. If sub-soil of sticky clay was discovered, cinders 12 inches deep were first applied to the excavated surface. If a sandy sub-soil was discovered, cinders to the depth of only 4 inches were needed. The cinders were then rolled and packed. Upon the well rolled cinders was placed a layer of stone 2 inches deep, the

stones measuring from $\frac{1}{2}$ to $1\frac{1}{4}$ inches in diameter. The stone, like the cinders, was then well rolled. Upon the stone was placed, to a depth of 1 inch, this mixture: Cork (pieces $\frac{1}{8}$ to $\frac{1}{4}$ inches

in diameter)	16%	by weight
Sand	33%	" "
Stone (pieces $\frac{1}{8}$ to $\frac{1}{4}$ inches		
in diameter)	16%	" "
Asphalt	33%	" "

1.87 pounds of asphalt was used for each square foot.

These ingredients were thoroughly mixed in a mechanical asphalt-mixing plant such as is used by road builders. The mixture, taken from the mixing plant, was spread and raked evenly and then rolled by a hand roller weighing between 1,500 and 2,000 pounds. After the mixture was well rolled there was spread over the surface a very light covering of sharp sand or crushed granite. The light covering of sand or granite was soon trampled into the mixture or brushed off by the feet of those who used the playground. The cost of the playground surface just described may be stated as 60 cents to \$1 per square yard, exclusive of grading and foundation of cinders and stone. The merits of such a surface are these:

It will endure without care for a great many years.

It is perfectly dust and mud proof.

It may be washed with the hose.

Less than any other playground surface will it skin the knees, cut the hands and injure the players in their numerous falls and "spills."

It may be marked readily and permanently for games.

It will not wear out playground balls, basket balls, volley balls and similar apparatus half as rapidly as other playground surfaces.

Having selected our areas, graded and surfaced the same, we are now ready to select apparatus and play facilities. For the children's play space the following apparatus is recommended as a useful, safe and complete, but not exhaustive list:

One wading pool, 30 to 50 feet in diameter.

One sand bin, not less than 12x20 feet.

Two athletic slides; six swings attached to an iron pipe frame not more than 10 feet high; three see-saws mounted upon an iron pipe frame not more than 2 feet high; two giant strides; two vertical ladders 7 feet high, 14 feet apart, and connected at the top with a horizontal ladder; six baby swings; a good supply of balls, bats, nets, bean bags and ring toss. This equipment, exclusive of wading pool and sand bin, should not cost more than \$300.

For the girls' playground the following apparatus is recommended:

One or two volley ball courts; two quilt pitches; one basket ball set; three balance beams; one high jump set; six swings attached to an iron pipe frame not more than

12 feet high; ladders as suggested for the children's play space, but with vertical ladders 8 feet high; two sets of traveling rings; two giant strides; a cement platform for dancing, 40x40 feet; a good supply of balls, bats, nets, quoits and jump sticks. This equipment, exclusive of cement platform, should not cost more than \$500.

For the boys' playground the following is recommended:

Two high jump sets; one pole vault set; one shot-put equipment; two broad jump lanes and accessories; three quilt pitches; two giant strides; six swings attached to an iron pipe frame not more than 12 feet high; two horizontal bars; two sets of flying rings; one or two volley ball sets; one or two playground baseball diamonds and accessories; a good supply of balls, bats, nets, poles, jump sticks, shots, quoits, etc. This equipment should not cost more than \$350.

In this connection, let me add that there is most interesting disagreement among playground experts and advisors concerning the use of apparatus in playgrounds. Those who have never tried to "skin the cat" or "hang by their toes" decry the value of apparatus, while those who have been trained in the schools of physical education see great possibilities in motor training as well as other virtues, in the extensive use of a well selected list of apparatus. The difficulty lies in the fact that the subject is too often treated as an absolute and not as a relative proposition. The question of how much and what kind of apparatus relates to size of area, sex, age and number of those who use the playground; landscape and architectural composition features of the playground as a whole; climatic conditions, plan of supervision and management, and the purse of the founders and supporters of the playground. A diagnosis of these conditions by someone who knows much concerning all of the factors involved is the only way to approach an adequate answer to the question. I am convinced that playground apparatus is more "sinned against than sinning," and that with sufficient funds available, ample area and the playground in the hands of a trained play leader rather than a mere football coach, nurse maid or policeman, the thing to do is to install a great deal of apparatus. The crux of the matter, aside from the relation of the apparatus to the composition of the playground as a whole, lies in the knowledge and skill of those in charge of the playground. In other words, playground apparatus is lightning, steam and flying machines, awaiting only Franklins, Watts and Wrights to give a demonstration of its possibilities. The lists which I have given above are presented as safe lists for average conditions and are not intended as the solution of particular or special conditions. To whatever school of thought one

belongs in this matter, there is one phase of the present situation that all should agree upon, and that is the elimination of the sensational in apparatus. The leap for life, marvelous merry-go-rounds, shoot the chutes from the heights of heaven and other Coney Island amusement devices have no proper place in the public playground. We cannot justify the present large expenditures of money for public playgrounds as mere hilarious amusement centers designed to tickle the sensory nervous system of children and young people. Only upon the high ground of establishing an auxiliary to the public school, a new and needed school of citizenship and a bulwark to the health, strength and courage of the nation is the present expenditure of money justified.

Where large areas are available, it is advisable to include as part of the boys' playground the running track described under Group Three of our classification of facilities.

The arrangement of apparatus in any given area is still another problem. I believe that the best procedure is to couple this problem with that of the provision of shade and to treat these problems as one. In other words, plant the girls' and children's playgrounds as groves, planting the trees 25 or 30 feet apart, and then proceed to arrange the games spaces and apparatus between the trees. Whatever is lost in freedom of action in games will be more than offset in the shade secured. The gymnastic apparatus in the boys' playground may be placed in one group, or divided and distributed to several points. In either case the apparatus should be placed with reference to good composition and finality of expression. Shade is not so important a factor in the boys' playground as in the girls' and children's play space, although some attention should be given to the matter of supplying a few shady resting places which the boys may make use of between their efforts in vigorous sports.

Drinking fountains, bulletin boards for posting rules and announcements, and a number of seats or benches for rest should be supplied in each playground. Permanent and comfortable benches should be placed in good number in the children's playground for the use of caretakers or parents who accompany small children. Toilet facilities should be close at hand.

The management of the play areas and facilities just described is of great importance. It is in these playgrounds that there has been a demand for a change from custodial to trained management. The problems of management here are: Inspection and care of apparatus, sanitation, handling of supplies, hours of use of the facilities, discipline, practical plans concerning use of plays, games, and many other activities, adequate care of those who receive injuries, and the great field of social, educational and civic relationship of the

playground to the neighborhood which it serves. Obviously, these playgrounds should be entrusted only to the management of intelligent and trained people. At least one man and one woman will be needed to manage the playgrounds described above. While it is possible to give a number of rules covering the factors of management, it is advisable to confine these largely to organization and physical aspects as contrasted with the factors of activities. Adequate management here becomes complex because of the rapidly changing conditions to be met in the handling of people of all ages in their pursuit of play and pleasure among many recreation facilities in small areas. The manifold possibilities in the modern playground for intellectual, social and physical recreation require an elastic scheme of management in the hands of persons of judgment, knowledge of the needs of people and sufficient vision to see consequences of right or questionable uses of facilities. The men and women employed for playground service, therefore, should not be regarded as mere instructors, play bosses or leaders of games, but rather as thoughtful managers, interpreters of child and adolescent life, chemists of human desires, and captains of the marching legions of young people on the way to a square deal citizenship. For where else will this much talked of square deal spring if not from the playground. Plant and nurture it here, and later it will stand the test.

The length that this paper has already reached restrains me from entering upon a discussion of the swimming pool and field house, two facilities of the modern play and recreation center worthy of serious study and almost endless discussion. Taking it for granted that the swimming pool and field house will soon become, where it has not already become, part of the problem of facilities and management of recreation centers, I shall close my paper with a brief discussion of the problems of general management of all the facilities and activities to which the park boards of this country have fallen heir in increasing manner the last six or eight years.

The problem of general management of recreation facilities concerns the large cities chiefly, but to some degree, at least, it concerns all cities of whatever size having public park departments or boards. One of the first questions in general management is that of *organization and personnel*.

The larger the city in population the greater the need of and demand for playgrounds. The larger the city in population, other things being equal, the larger the park department, if not in area of parks, then in extent and diversity of park service and work. The greater the city in population and land values, the greater the resources, income and expenditure for park purposes. Again, the larger the city, the

greater the number of social, civic and reform organizations, urging, criticising and praising the park board or department for the things it has or has not done to advance the playground idea as a matter of first importance in park development. These conditions present one of two alternatives to the park department or board: either to carry on an unholy war to keep the playground idea down, out or under, or to accept it with open arms and proceed with its development in a manner commensurate with the social needs of the city, the resources at hand and the possibilities involved. Pursual of the latter course means the introduction of a maze of new problems in planning, equipping and managing the new work. These problems are so new, numerous and without precedent in their solution that the employment of a special worker to head up and carry through the work seems inevitable. The "supervisor," "manager," "director" or "superintendent of playgrounds" is, therefore, added to the operating force of the park organization. The nature of this man's work soon brings him into the public eye through the press or personal contact with leading citizens and organizations who are interested in his work. He is called upon to furnish material to the press, make speeches before organized bodies and participate in city-wide discussion concerning recreation problems. No matter what title and precise official place you have given this man in the organization he becomes, in a public way, superior to and overshadows the head gardener, the head animal keeper, engineer and maintenance chief. He may even seem to overshadow his superintendent in relations with the superintendent's superiors and a certain portion of the general public. It is not enough to say that "if this fellow knew his place, tended strictly to his job, didn't lose his head, overshoot his mark and swell with importance," there would be no serious questions concerning organization and personnel. The increasing development of playground and recreation facilities of intricate nature in park systems, and the need of high-grade men to take charge of and remain with this work, suggests that park superintendents give this matter frank discussion and earnest effort toward a solution of the problems involved that shall at once preserve the dignity of the park superintendent and enable the playground man to fill his function. In my judgment, based upon actual experience and studied observation, there are but three practical solutions of this problem. I recite them in their application to the simple to the complex, small to large systems:

Plan (A): Appoint a high-grade leader or director of play activities in each of the playgrounds or centers of directed recreation work and let the superintendent treat directly with each one of these leaders as he would treat with a foreman or gang

boss. Treat problems of planning, equipment and management as landscape and architectural work are now handled, by the employment, regularly or at intervals, of a playground expert comparable with the consulting architect or landscape gardener. The consulting playground expert could assist the superintendent with plans, specifications, selection and care of facilities and the right solution of problems of activities and management. This plan of general management has much to commend it in the smaller cities and park systems. In any park system it lends itself to the one-man power plan of organization and management. It may or may not be an economical plan, but it may at least be made an effective plan without disturbing present customs and traditions in park management.

Plan (B): Create a department or division of playgrounds and recreation centers and place a high-grade playground expert as head of this division or department. Assign to him the handling of all problems of the park system concerning the planning, equipment and management of all active, organized and directed recreation activities and facilities. This plan finds its counterpart not only in up-to-date park systems themselves, but in many business, school and railroad organizations. The thing to be said against this plan is that it brings a department with inherent popular qualities into emulation, if not strife, with other departments not so popular, or having an opportunity to parade in public on equal footing with the new department. Under these conditions there is likely to be a development of contempt for the playground idea and workers. The law of supply and demand which so largely governs wages has thus far given playground workers a comparatively higher rating than all old-line park workers, and this in turn is likely to develop the feeling of hatred which springs from the measurement of wages as an index of favor, power and influence. There are many other reasons which might be advanced to suggest that while the departmental system of management is generally favored in large park systems, it may not fit the needs of the hour as well as one of the other two plans herein set forth.

I submit the third plan with considerable fear of being misunderstood. But if the function of my paper is to stimulate thought concerning the problems of tomorrow as well as to discuss difficulties of today, and unless we are to regard park groups as static in function and organization, I may at least hope to escape censure.

Plan (C): Select a high-grade, versatile and experienced playground expert and appoint him with the title of assistant superintendent. Let him be a co-ordinate power with the superintendent in all that pertains to the planning, equipment and

management of active recreation facilities throughout the park system.

Park work in the operating department falls into two major divisions—physical development and upkeep on one hand, and the encouragement, interpretation, restraining and guiding of people in the use of park facilities on the other hand. Each of these divisions will be subdivided according to the extent of the field of operation. Park superintendents, like playground experts, doctors, explorers and aeroplanes, have their limitations. The drift in modern park development and operation is like the drift in modern agriculture—toward intensive use of every acre of ground. This in turn spells increasing *active* recreational uses of parks of whatever character, and the development of new kinds of parks. The great need of the park superintendent in this hour of amazing new demands is a co-ordinate head who shall relieve him of many perplexing human problems, the right solution of which means a progressive, ready, responsive and truly serviceable park system as contrasted with a system 50 per cent efficient, halting and held behind rather than out in front of the people. The claim that the engineer, construction man, maintenance chief or gardener should be the co-ordinate head of the superintendent is based upon mere custom and not in the logic of the present situation. The service of these men is indispensable and often beyond barter, but it has to do with the preliminary and not the final function of the park. The processes of the engineer, construction foreman, maintenance chief and gardener are governed by mathematics, mechanical arts, inanimate materials and the definitely classified habits of plants. The man who deals with the people in their pursuits of recreation upon or with park facilities has the ever changing moods, racial habits, moral attitude and other personal equations of groups of people of all ages to cope with. He, more than the other workers in the operating department, needs close relationship with and the co-ordinate power of the superintendent. It is perfectly true that the engineer, construction man, maintenance chief and gardener base their work upon the needs of the people in the use of the park. But the efforts of these experts have left our parks, apart from excellent artistic and architectural expression, with much to be done in real human service. And the reason for this is that interpretation of the recreation needs of the people has come, not from the student, expert and master of that subject, but from the master of another subject who has done the best he could with a matter which, for obvious reasons, he has not mastered. But the superintendent may say, if I am to have an assistant, it is merely a question of the man and not the organization. Give me a willing, loyal worker (maintenance man,

construction man, engineer or gardener) to my liking and I will handle the matter. History is full of episodes which show that many good men have been ruined by a bad organization—often where the personnel of the organization has been very superior—also that strong men have been made stronger by a good organization. The real question is, Why not hitch the horse before the cart and drive to the goal by the road of logic?

The country-wide playground and recreation center movement has injected in public park work a group of twentieth century problems which are as worthy of serious study and accurate handling as any problems which have been presented for solution since the time the Egyptians began the building of parks. It is quite clear, I think, that the great possibilities and the problems of the present and future public park service lie in a perfect adaptation of every foot of park ground to human needs, and especially those needs as expressed in the best tendencies of the modern recreation center movement. I do not mean that public parks are to become "mere playgrounds," that their planning and development is not to be governed by the canons of art and the laws of landscape architecture, but I do mean that a new and larger service is to be rendered by parks, and that that service will not only depend upon a new kind of material and mechanical manipulation, clothed with the best artistic expression, but upon official attitude, adequate organization and masterly handling of latent possibilities. Since sentiment and ideals have governed us in park building, let us put the matter thus: The song of the park should not be "drink to me only with thine eyes," but, rather, "*embrace me* in thy youth and adore and support me forever after."

All people of all time who have left an impression upon the world have been park builders, and only those people who have secured leisure have been able to scale the heights of civilization. In the past, leisure has been secured by one group through making slaves of another group. This was especially true of Greek and Roman civilization, which rose to incomparable heights in the marks of a great civilization. In America we are making machinery to do the work which was formerly done by slaves in other civilizations. There are indications on the horizon that our machinery will give us more leisure than any other civilization has experienced. The measure of the sanity, wholesomeness and strength of our civilization will be found in the manner in which our people spend their leisure hours. When park superintendents put these factors of ascending civilization together they will readily see the virtue, worthy work and patriotism which is theirs in giving modern play and recreation problems the best possible treatment.

PLANTING AND CARE OF STREET AND LAWN TREES

Synopsis of Stereopticon Lecture at Denver Convention of A. A. P. S., by Secretary J. J. Levison, M. F., of Brooklyn, N. Y.

By means of a large number of lantern slides of park and street trees in Brooklyn and in many European cities, he showed the various ways in which parks are utilized by the citizen and the efforts made in Brooklyn towards educating the public to a proper appreciation of the parks and trees. He indicated the best trees suitable for street and park purposes in the East and showed the kind of trees to be avoided and the reason for his statements. The value of paying special attention to the specimen tree and the advantages of planting young trees rather than trees over 3 or 4 inches in diameter was also brought out very clearly by the speaker.

He laid special emphasis on the importance of forest or natural parks in cities and made a strong point of the need of preserving the undergrowth in the woodland areas of our parks, and of leaving the leaves on the ground. He strongly denounced those who make a practice of gathering the leaves from the wooded areas of our parks every Fall and thereby impoverish the soil and injure the standing trees. He advocated municipal control of all street trees,

both in the planting of new specimens and in the care of those standing, and he also urged the establishment of a municipal nursery in every city where trees are cared for.

In referring to the care of trees, Mr. Levison pointed out the folly of over-pruning, which he said was a common tendency. He showed contrasting pictures of streets lined with trees properly and improperly pruned and pointed out the fundamental principles of the work.

In the matter of insect eradication, he urged the application of insecticides at an early date while the insects were still young and susceptible to the poison. He warned the audience against epidemics that are gradually covering extensive areas in various sections of the country. The hickory bark borer, the Leopard moth, the Gypsy and Brown tail moths, the Tussock moth and the elm leaf beetle were among those in that class. In this line of work, as well as in the elimination of tree diseases, he showed the importance of constant watchfulness and close supervision and pointed out the impracticability of allowing any of these pests to accumulate. He thought

the secret of proper maintenance in the care of trees lay in the timely attention, the same as a good housewife would do from day to day.

On the subject of tree disease he decried the tendency to try to save, old and decrepit trees, that are either full of diseases which cannot be eliminated or which are so badly distorted or weakened that they have become unsightly or dangerous and no longer an ornament.

Cavity filling, he thought was only justified where disease can be entirely eliminated, where the cavity is very small and where the filling would serve the practical purpose of keeping out water. In most cases he thought the gouge and chisel, without the use of cement would serve the better purpose. He referred to the chestnut disease and explained the futility of trying to save infested trees. Trees killed by this disease, he said, should be cut down and the wood utilized for poles, posts, ties and lumber.

The speaker also dwelt on the value of educating the public and especially the young, in trees and nature generally by means of literature, clubs, lectures, etc., which he thought was within the sphere of the local Forester to promulgate. In this connection he showed the importance of having as Forester, a man as thoroughly trained in experience as can possibly be obtained in the field.

RAILWAY GARDENING ASSOCIATION CONVENTION

The seventh annual convention of the Railway Gardening Association was opened at the assembly room of the Hotel Tulane, Nashville, Tenn., on Tuesday evening, August 12, at 9 p. m. The opening address was by President Charles H. Tritschler, the address of welcome by Hilary E. Howse, mayor of Nashville, and the response by C. W. Eichling, of New Orleans.

At the next morning session the roll call showed 54 members present.

The minutes of the 1912 Meeting were read and approved, followed by an interesting paper by J. A. Byrne, of Relay, Md., on "Live Fence." This paper caused considerable discussion, those taking part being Messrs. Moulder, Gray, Tritschler, Stark, Lehman and Eichling, and it was decided to appoint Mr. Byrne a Committee of one to investigate and recommend at the 1914 meeting the plant most suitable for a live fence or right of way hedge.

Emil Engleman presented a paper "A Study of Injury to Plants by Smoke and Their Resistance." This was one of the most interesting and instructive papers and was followed by a long discussion. It was commended very highly by all present. "The Sundial," by E. F. A. Reinisch, Landscape Engineer, Santa Fe, and "Rail-

road Landscape Gardening in the South," by C. W. Eichling, New Orleans, were interesting in all of their different phases.

At 2 p. m. the guests were taken to the various City Parks in special cars, provided by the Nashville Electric Light and Railway Co.

At the next day's session the following papers were read:

"Prevention of Slides on Slopes," by J. K. Hutchison, P. & L. E. R. R. Gardener.

"Grass for Shaded Places," by George D. Lehman, P. R. R. Gardener.

"What Returns Do Railroads Receive from Landscape Gardening?" by R. W. Hutchison, Gardener, Pennsylvania Lines West.

"Caring for Trees," by I. T. Worthley, Assistant Forester, P. R. R.

"To What Extent Should Railroads Co-operate With Civic Improvement Leagues," by F. W. Vail, Gardener, Central R. R. of New Jersey.

"How to Exterminate Dandelion and Other Obnoxious Weeds from the Lawn," by Paul Huebner, Gardener, Philadelphia & Reading R. R.

At the last day's session F. W. Vail, Central R. R. of New Jersey, was elected President. J. A. Byrne, B. & O. R. R.,

Relay, Md., was elected Vice-President, to serve a four-year term. W. F. Hutchison, was elected Secretary and J. K. Wingert, Cumberland Valley R. R., Chambersburg, Pa., Treasurer.

A paper "The Appreciation of Railroad Gardening as Seen by the Traveler from the Car Window," was read by R. J. Rice, Assistant Gardener, Michigan Central R. R. "Looking for Something Better," was the title of Mr. G. B. Moulder's paper. "The Propagation of Shrubs and Care of Cuttings During the Winter," by F. C. Stark, Gardener, Pennsylvania Lines West, and "Fertilization for Grasses and Shrubbery," by J. K. Wingert, Gardener, Cumberland Valley R. R., concluded the reading of the papers.

George B. Moulder, R. W. Hutchison and John Giepner were appointed a Committee on Revision of By-Laws, New York was selected as 1914 Meeting Place, dates to be selected by Committee composed of H. S. Moulder, J. K. Wingert and G. S. Gray.

It was voted that all associate members in good standing to 1914 Meeting be allowed free of charge a half page advertisement in the 1913 Booklet of Proceedings, and that the advertisements be limited to associate members only.

NATIONAL CREMATION ASSOCIATION ORGANIZED

The organization of a cremation society that counts on the support of the people not only of the United States and Canada, but of the countries to the south, including South America, was the object announced at the meeting in Detroit, on the 27th and 28th of August, 1913, held to organize a national association in accordance with the call sent out by the Michigan Cremation Association.

The gathering was held in the chapel of the association at Fulton and Govin streets, Detroit, and an address of welcome was had from Mayor Oscar B. Marx, who after a cordial greeting, stated that: "Being a cremationist myself, I have no difficulty in realizing that the practice of incineration is preferable to earth-burial from an esthetic as well as a hygienic standpoint." He added further: "In order to bring about a change in public sentiment, continual propaganda is required and in this respect, I believe, your new national society is destined to play a great part."

After selecting as a name for the new society, The Cremation Association of America, the business of organization was transacted, and the following officers elected:

Dr. Hugo Erichsen, of Detroit, President; G. S. Metcalf, of Buffalo, Vice-President; Frank L. Cobb, of Boston, Treasurer; Chas. C. Reynolds, of Los Angeles, Secretary, who with the following members form an Executive Board: A. T. Roeber, Cincinnati; W. O. Roy, Montreal; C. W. Buchanan, Indianapolis; R. D'Oench, St. Louis; H. S. Mann, Omaha; W. J. Adams, Fort Wayne.

The membership was made active and associate, the fee for the former being \$10.00 per year, and \$1.00 for the latter. Other active delegates were:

E. P. Samson, of Pittsburgh; Konrad Krueck, of Cleveland, and Messrs. Winters and Allen of the crematory connected with Woodmere Cemetery, Detroit.

Dr. Erichsen in addressing the association said: "We have reached another milestone in the history of cremation in America. For the first time we are here assembled to counsel with each other and take steps to carry on an effective propaganda in behalf of a reform that enlisted the efforts of such eminent physicians as the late Dr. Samuel Gross, of Philadelphia, and Sir Henry Thompson, of London. In a recent letter to me, my friend Burkhard Reber, President of the Cremation Society of Geneva, Switzerland, gave it as his opinion, that a continual propaganda is absolutely essential to the progress of incineration." Further in that line Dr. Erichsen urged hygienic argument, lectures, stereopticon entertainments, and the distribution of cremation literature.

The afternoon of the first day of the

convention was spent in an automobile tour of Belle Isle.

The second day was occupied by discussions on various topics having to do with the practical side of cremation, i. e.—the use of gas, oil, etc., in supplying superheated air to the retorts where the remains are reduced to their original elements, leaving but the lime in the form of ashes. The matter of allowing visitors in the incinerating room during operations, was found to have been subject to different practices, but Mr. Reynolds, of Los Angeles, said that he encouraged the practice to the fullest extent, as he was able to explain the operation in a quiet and sympathetic way, and that the simplicity seemed to remove the feelings of affright, dread and apprehension of evil that so often occur on first acquaintance with cremation.

The final session was held in Parlor D of the Cadillac Hotel, where the following paper on "Columbariums" was read by S. F. Balcom, of Indianapolis, an associate member:

COLUMBARIUMS.

In the British Medical Journal of February 29, 1914, a report of the progress of cremation in Great Britain is given as follows: "Records show a slight decrease in this country during the year 1910, the total having been 849, as against 855 in 1909. At all the crematories together there was a total decrease of 15. This is slight, but none the less disappointing, as nowhere has there been a steady increase. The Cremation Society of England is in a flourishing condition, and many well known persons have lately given practical support to the movement by becoming life members. Cremation is still almost entirely confined to the well-to-do classes."

This shows the cremation problem in England to be about as in America, as far as getting hold of the masses is concerned. A writer in the Review of Reviews states the present condition quite well as follows: "There are certain movements of a public nature which literally 'pursue the noiseless tenor of their way,' gaining adherents here and there. The cremation movement is one of these."

From these quotations it is fair to conclude that there has been a lack of effort, or that the right methods have not been put in use. Is it sufficient that it should be left to "pursue the noiseless tenor of its way?"

Cremation is radically different from inhumation, and a line of cleavage comes at the incinerarium, and the province of cremation ends there. The remains come back in a purified state, but they come with an appeal. To bury them in the earth is unnatural, for earth in this case has no office to perform, and it is a notorious fact that mother earth has proved to be a most unreliable keeper. To place the ashes in an urn without providing a permanent abiding place for it, stops at a most unsatisfactory resting place.

Can there not in some way be provided a method, peculiar to cremation, that would preserve them permanently and in a beautiful and endearing way?

It might be answered that columbariums are provided. This is getting close to a solution, but at the same time we find that nearly all the columbariums are connected with the incinerariums, and here again comes in the line of cleavage mentioned. Cremation is an absolute necessity, but can never draw to itself any measure of affection. Sentiment and affection will ever cling to the incinerated remains, so by the true nature of things they should be entirely separate, except in cases where it is necessary to store them temporarily.

It is easily seen that it is not the province of the crematory to enter this field of sentiment. It can only stand ready to perform its grim duty and realize that it has

a thankless task; and when the practice of cremation shall have become anyways general, the crematory owners will be glad to be relieved of the care of remains that are unknown, unseen, and practically buried out of sight. What then can be offered as a solution of the question?

We will attempt a few suggestions, as follows:

1. Individual or family columbariums, located in cemetery lots, and made as attractive as architectural design and landscape treatment can make them.

2. Community or corporation columbariums that are located in cemeteries or on public ground where there can be an assurance that they will remain undisturbed for generations to come. These can be on a scale to make them a matter of pride to the patrons, and a credit to the community in which they are erected.

3. A national columbarium on a scale greater than any of the others and having features that could not be had by those erected in the various states, could be planned. It could be made to appeal to those who have no family ties that would induce them to become associated with any state or local columbariums; and to those who might wish to establish a family that would provide a resting place for the remains of members of the family for a long time to come.

The features in which it would differ from state or community columbariums would be that it should be located at some central point and in such a way as to insure its not being disturbed for all time to come; this could only be in the mountains; for instance, at some point in the Blue Ridge, centrally located as to the country east of the Mississippi river, and so maintained that it would be a joy to visit it on a pilgrimage. Another feature would be that each state could have a reservation for its citizens and the various societies could do the same. The order of Odd Fellows in California has erected a crematorium with a columbarium attached, but it cannot be of general use over the country. In the case of a national columbarium, this or any order or fraternity could establish a general repository, in the same sense that they have a Grand Lodge.

Such an institution, being under national control, would give an opportunity for work in the broadest of all fields. This would induce people to become life members and make provision for cremation while yet in active life, and would bind together the efforts of cremationists all over the land.

It would also give full play to the aesthetic side of cremation, for the building would be planned on a vast scale, as an Egyptian temple, for instance, which is capable of construction and occupancy in parts, with a view to a magnificent structure when completed. The interior would be fitted with reception rooms and corridors which would give endless opportunity for memorial tablets, busts, statuary, panels, gates and other constructions in bronze, marble and stone.

It is to the aesthetic side of the subject that appeals will have to be made to secure converts to cremation, for the scientific side is always in evidence and forces its claims continually. The memorial feature that has always been a solace to relatives and friends in earth burial is hard to replace in cremation, and work along the line of columbariums will accomplish more than any thing else to remedy the discouraging conditions mentioned in the beginning of this paper.

As a final action the association adjourned to meet at Indianapolis in 1914, on a date to be determined later by the Executive Board.

A vote of thanks and appreciation was given Dr. Erichsen for his energy and untiring efforts in the bringing together representative cremationists from the principal cities dotted over the land from the Atlantic to the Pacific, and extending from Canada, who was most ably represented by a delegate, to the southern boundary of the territory now practicing cremation. Numerous letters from others were received asking that they be enrolled as active members.

A. A. C. S. IN GOOD CONVENTION AT BUFFALO

NEW OFFICERS ELECTED.

President—M. P. Brazill, St. Louis.

Vice-President—Thomas Wallis, Chicago.

Secretary-Treasurer—Bellett Lawson, Jr., Chicago.

Executive Committee—F. R. Diering, Woodlawn, N. Y.; W. H. Atkinson, Trenton, N. J.; William Falconer, Pittsburgh, Pa.

Next Convention at St. Louis.

The first session was called to order in the convention hall of the Statler at 10 o'clock, Wednesday morning, with Vice-President M. P. Brazill presiding. Prayer was offered by Rev. John D. Campbell, of Buffalo. John Sayles, secretary to Mayor Louis Fuhrmann, represented the chief executive of the city, extending most cordial greetings from the latter, who was unable to be present. Mr. Sayles gave an able address, saying in part:

"In the unavoidable absence of the mayor, who, I assure you, deeply regrets his in-

Cemetery, but the results were not what was expected, having only sold about \$25.00 worth from that source. We still have about 200 copies on hand.

At the Milwaukee meeting 18 new members were enrolled. Since that time 6 applications have been received and await your formal action.

During the past year no deaths have been reported. Two resignations have been received and the names of four members are ready for cancellation of membership for non-payment of dues.

The present membership is 237. The buttons ordered at the past convention have been made. I could not give the matter proper attention in the early part of the year. Rather than have it done hastily I brought the sketch along with prices for both plate and gold buttons. Those members who wish gold buttons can place orders at this convention.



ASSOCIATION OF AMERICAN CEMETERY SUPERINTENDENTS IN CONVENTION AT BUFFALO.

The twenty-seventh annual convention of the Association of American Cemetery Superintendents was held at the Statler Hotel in Buffalo on September 17, 18 and 19, and from every standpoint it was a most enjoyable and profitable affair. The attendance was fully up to the average of past conventions and the able efforts of the local committee, headed by E. W. Werrick, of Ridge Lawn Cemetery, were largely responsible for the delightful entertainment extended to the visitors. The ladies were provided with sightseeing tours while the convention was in progress and each visitor was enthusiastic over the hospitality of Buffalo. Local undertakers and other citizens generously extended the use of automobiles for various trips, which were greatly enjoyed.

The Convention Committee consisted of E. W. Werrick, Buffalo; J. W. Keller, Rochester; F. Sheard, Rochester; George E. Troup, Buffalo; George Moeller, Buffalo; Frank B. Sercu, Buffalo, and B. F. Potts, Buffalo.

The Ladies' Auxiliary, who made things pleasant for the visiting ladies, consisted of Mrs. E. W. Werrick, Buffalo; Mrs. George E. Troup, Buffalo; Mrs. B. F. Potts, Buffalo; Miss Mary Sercu, Buffalo; Mrs. J. W. Keller, Rochester, and Mrs. F. Sheard, Rochester.

ability to be present with you, I extend the hearty greetings of the city of Buffalo to you who have the care of the ashes of the dead. You are engaged in a noble occupation and you have our unbounded respect. I believe that every cemetery should be made a place of beauty, a garden. In behalf of the entire populace of this great city I want you to know that we esteem the men and women of this association and that we have an exalted opinion of your mission. You are here as our guests, and everything we have is yours without reservation."

Mr. Brazill thanked Mr. Sayles for his kind remarks and announced that President H. M. Turner, of St. Paul, had sent a telegram of greetings and regret that an unforeseen accident had prevented his attendance.

The report of the secretary-treasurer, Bellett Lawson, Jr., was as follows:

SECRETARY'S REPORT.

To the Members of the Association of American Cemetery Superintendents:

Gentlemen:—The proceedings of the Milwaukee Convention were printed and two copies sent to members instead of three as heretofore.

This edition is by far the largest ever printed by this association, and on account of the size and cost it was deemed best to send each member two copies only. However, as there was a misunderstanding by the printer a larger number was printed than was intended.

At the suggestion of Mr. Haight these were advertised for sale in the Park and

(Here follows detailed financial statement showing receipts of \$1,277 and expenditures of \$695.43.)

On motion of Mr. Benson it was voted to telegraph President Turner the condolences of the convention and its regrets over the unfortunate accident which prevented his coming to Buffalo.

The following committees were appointed:

Resolutions—A. W. Hobert, Minneapolis; Leroy Christie, Ottumwa, Ia.; C. T. G. Flaherty, Albany.

Credentials—G. W. Creesy, Salem, Mass.; H. S. Adams, Jamaica Plain, Mass.; W. F. Landes, Indianapolis, Ind.

Auditing—E. G. Carter, Chicago, Ill.; J. S. Medary, La Crosse, Wis.; F. D. Willis, St. Paul, Minn.

Location—John Reid, Detroit, Mich.; W. O. Roy, Montreal, Canada; J. J. Cunningham, New York.

Badges—W. C. Graussau, Brooklyn, N. Y.; E. A. Merriam, Chattanooga, Tenn.; M. H. Winters, Detroit, Mich.

E. G. Carter, of Chicago, read the report of the Committee on Community Mausoleums, explaining in preface that most of the credit for compiling the report should be given to W. N. Rudd, of Mt. Greenwood Cemetery, Chicago. This report is printed elsewhere in this issue. A vote of

thanks was extended to this committee for its efficient work.

An extended discussion followed this report:

"Assuming that all these conditions exist, can such a mausoleum be erected so as to be a profitable venture? What effect would it have upon the sale of lots? Would the crypt buyers be likely to buy lots for monuments also?"

Mr. Green—That would depend largely upon local conditions.

Mr. Wallis—The able paper just read by Mr. Carter voices my sentiments exactly. We are building a community mausoleum at Rosehill. It has not affected the sale of lots thus far, but I expect that it will. My personal opinion is that if Rose Hill had it to do over again, they would not start to build one. We have started, however, and are going to build a good one with 1,500 catacombs. I am not prepared to

to sell them burial lots. He said that many of the people he brought there, to see this community mausoleum would have nothing to do with it, but that he was able to sell over fifty cemetery lots to those people.

Mr. Stuart—We have one of these in Syracuse. The sale of lots has more than doubled on account of it. People come to the cemetery out of curiosity to see the community mausoleum. Then they buy lots.

Mr. Boone—We have sold fewer lots in our cemetery in Syracuse since the community mausoleum was built.

Mr. Hart—We are up against a proposition in which several of our best citizens want a community mausoleum. If this is built they will never buy lots, otherwise they will. There has been a small one near us and it has been an aggravation for several years.

Mr. Medary—It has not affected the sale of lots so far, but it undoubtedly will do so. I agree with the report on one point in particular. The demand for this kind of burial is being made by promoters. They

Mr. Olsen—We had a promoter in our town for three months trying to interest the people in buying crypts. They were not to start building until they had sold a certain number. He did succeed in selling some of the wealthiest men in town but he failed to start the building because most of the people were not in favor of it.

NEW MEMBERS.

The Committee on Credentials reported the following applications for membership, which were accepted:

B. F. Potts, assistant superintendent Elmawn, Buffalo, N. Y.

W. H. Gleason, superintendent Mountain View, Shrewsbury, Mass.

E. F. Lundenstrom, superintendent Elmwood, Birmingham, Ala.



say whether or not it will be a financial success.

Mr. Rutherford—I would like to ask if this is being built by the Cemetery Association and under what patents.

Mr. Wallis—No patents except the architect's plan.

Mr. Laudes—I would like to know what excuse there is for calling some of these structures "community mausoleums." They should more properly be called "promoters' mausoleums." I do not see the connection between the two. The promoters are not communists. They are individuals financially interested in a money-making proposition. Only one per cent of the total is animated by any other purpose. We are not interested in the community mausoleum.

Mr. Druckemiller—The report states that there should be a maintenance endowment of 50 per cent of the cost. How much will this add to the price of each crypt?

Mr. Carter—The object of this committee was to bring the matter out in principle, not in price. Judging by the amounts of previous endowments, nearly the whole of the endowment should be added to the price of the crypts. For instance, crypts that have been sold for \$150 should be increased to \$300.

Mr. Druckemiller—According to that the endowment would double the cost. Then if we add to this the amount necessary to build them properly instead of the way they have been built, the increase would be about 250 per cent on each crypt. A structure of this sort cannot be properly built and properly endowed to make it a financial success.

Mr. Benson—I insist upon attention being given to my previous question. How is it to affect the cemetery? Is there anyone here who has had this experience?

Mr. Lawson—I have had no personal experience in this matter and what evidence I can give is merely hearsay, from information received from a salesman for a community mausoleum proposition. He told me of experience he had in an Ohio city. According to his arrangement with the cemetery association there, he was to take people to the cemetery and if unable to sell them crypts he was then to endeavor

go to some persons who have never heard of it before and it will appeal to some of them, especially to a foreign population.

Mr. Laudes—Theory and practice are two different things. The community mausoleum is theory. Earth burial is practice. I believe that foreigners in particular demand earth burial. That is the custom in all of the old countries and they want it here. Promoters have brought it before us as a theory, but the people will not accept it. The Bible teaching of "ashes to ashes, earth to earth and dust to dust" appeals to us and it always will.

Mr. Roy—I would like to ask Mr. Wallis what his charge is per crypt and the approximate cost per crypt. Is there much profit in crypts?

Mr. Wallis—We charge \$300 per crypt. We cannot tell about the profit as the foundation only has been built. It is a mistake for any cemetery to build a community mausoleum if it has plenty of ground. We have some private rooms that sell for \$5,000.

Mr. Druckemiller—What are you to do about maintenance endowment?

Mr. Wallis—That will be provided for.

Mr. Broughton—A representative of a mausoleum company recently came to me about a patented process for taking care of bodies. He called it the dissicating process. He told me he had been in correspondence with our secretary, Mr. Lawson, about it. Does anybody know anything about this?

Mr. Lawson—That is the first I have heard of it.

Mr. Broughton—I have no use for this community mausoleum.

Mr. Rutherford—I am convinced that a cemetery association cannot conduct a community mausoleum at a profit.

Mr. Roy—Plenty of white elephants like this have been unloaded onto cemetery associations. These companies come into a town and without putting up any capital at all, take subscriptions and make the people furnish all the money. In one case I was told they collected \$350,000 and the cost of the structure was \$42,000, including an endowment of \$2,000 for perpetual maintenance. In St. Catherine's they went out of town with \$300,000, and left the white elephant with the people.

E. A. Sloan, superintendent, Marion, O.

C. R. Woodward, deputy superintendent Lake View, Cleveland, O.

P. J. Caldwell, superintendent Cedar Grove, Dorchester Center, Mass.

John G. Borgstede, president Ferncliff, 3230 Third avenue, New York.

Alex. Hanton, superintendent Elmwood and Hope, Barre, Vt.

C. D. Benson, president Woodlawn, Miami, Fla.

Fred Kershner, superintendent Shenango Valley, Greenville, Pa.

D. S. Thurber, superintendent Swan Point, Providence, R. I.

George D. Brown, superintendent Mountain View, Pasadena, Cal.

A. L. Scott, superintendent Mount Muncie, Leavenworth, Kan.

August D. Walker, superintendent Oakwood, Niagara Falls, N. Y.

Carl E. Kern, assistant superintendent Spring Grove, Cincinnati, O.

C. E. Stringer, superintendent Gracelawn, Flint, Mich.

H. H. Hart, superintendent Oakland, Indiana, Pa.

S. E. Templeton, superintendent Mt. Hope, Morgan Park, Ill.

F. H. Smith, superintendent Rome, Rome, N. Y.

F. B. Sercu, superintendent Pine Hill, Buffalo, N. Y.

George E. Troup, superintendent Forest Lawn, Buffalo N. Y.

George Moeller, superintendent Buffalo, Buffalo, N. Y.

Charles A. Stuart, superintendent Morningside, Syracuse, N. Y.

"Cemetery Accounting" was the subject of a paper by A. W. Hobert, of Minneapolis. This will be published in *PARK AND CEMETERY* next month.

The remainder of the first day's session was taken up with the question box. The first one was regarding death records. Mr. Gross said his cemetery formerly kept these, but they are now kept in the county recorder's office.

Next was in relation to free use of chapel. Several of those present said they allowed free use of chapel for funerals; others said they charged for use of organ; others give free use to patrons of the cemetery, but charge a fee of \$5 to all others; some charge \$10, which is considered the cost of decorating and care.

Regarding the desirability of concrete enclosures, there was a diversity of opinion. Mr. Ross contended that they are not desirable. Mr. Lawson said there are certain cemeteries in the larger cities in which it is necessary to erect some sort of an enclosure that the people cannot climb over. He suggested a concrete enclosure with vines on the outside and shrubbery inside. He said they have been built for \$1 per foot. They are laid out in panels, with posts eight feet apart. On each side of the post is a groove into which the panels are set. The posts are eight inches square and the panels three inches thick.

Wednesday evening was given over to a theater party in which the entire convention accepted the invitation of the Buffalo Steam Roller Co. to be its guests at Shea's Theater.

THE SECOND DAY.

A 9 o'clock on Thursday morning the visitors assembled in front of the Statler and embarked in automobiles provided by public-spirited citizens of Buffalo. The entire day was spent in sightseeing at the various parks and cemeteries. The first stop was made at the South Park botanical gardens; then to the various cemeteries in the Pine Hill district; then to Elm Lawn Cemetery, taking in the entire boulevard system, to Delaware Park, and winding up at Forest Lawn Cemetery, where lunch was served in a large tent. It was planned to have Prof. J. H. Cowell, director of the South Park Conservatory, deliver a paper upon the subject of "Trees and Shrubs for Cemetery Planting," but he was unable to be present on account of an automobile ac-

cident. The paper will be published in the account of the proceedings.

On Thursday evening the convention again assembled at the Statler and a very profitable evening was spent in discussion of various topics. Mr. Anderson extended an invitation for the association to meet in Portland, Ore., in 1915.

Matthew P. Brazill read a paper entitled "Cemetery Roads," which is published elsewhere in this issue. This was followed by a lengthy discussion upon the respective merits of tar and other road materials. Mr. Ross said that the tar products are extremely reliable and that tarvia is giving great satisfaction.

F. D. Willis, of St. Paul, read an interesting paper entitled "The Rejuvenation of an Old Lawn." The paper was as follows:

THE REJUVENATION OF AN OLD LAWN.

By F. D. Willis.

During more than twenty years the grass had been closely shorn on the top of a gravey knoll during which time there were no applications of herpicide, vigorol or other aids to youth and beauty. The result was a profuse growth of oxalis and other acid plants with very little grass and no clover.

When the breath of spring began to suggest the idea of renewed life and youth of nature, the first step in the process of rejuvenation was taken. This consisted of the application of a coat about one-eighth of an inch in thickness of ashes. Having no wood ashes, the product of bituminous coal, carefully sifted to remove the clinker and cinder, was used.

The second operation was the thorough combing of the surface with a fine steel rake to remove the dead weeds and incorporate the ashes with the soil.

The ground was then seeded heavily with a lawn grass seed containing a liberal amount of white clover, but no Herd's grass or timothy.

A coating of rich soil about one-half inch in thickness was then spread on and carefully worked until smooth.

The result:

The spring rains induced a rapid growth of the grass before the weed seeds had time to get through the ashes.

Four seasons later. This piece of lawn is still one of the best in more than forty acres.

A vote of thanks was extended to Prof. Cowell for the interest he has taken and an expression of regret over the accident which made it impossible for him to be present. A vote of thanks was also extended to Mr. Brazill and Mr. Willis for their papers.

Mr. Jones referred to the bill to prevent cemeteries from interfering with outside gardeners. The bill was defeated in Pennsylvania through the argument of Mr. Barnes against it. Mr. Jones read a copy of that argument.

Mr. Grassau reported for the Committee on Badges, stating that they recommended the original emblem of the association in reduced size, to be made in solid gold. These can be secured for \$1.11 each, and it was voted that the association purchase 100, to be sold to members at cost.

The following names were placed in nomination to be voted on the following day

as officers for the ensuing year: President, Matthew P. Brazill, St. Louis; vice-president, James Warren, Providence, R. I.; Thomas Wallis, Chicago; M. H. Winters, Detroit; William Falconer, Pittsburgh; secretary-treasurer, Bellett Lawson, Jr., Chicago. Executive Committee—W. B. Jones, Pittsburgh; W. H. Atkinson, Trenton, N. J.; C. P. Scott, Peoria, Ill.; T. H. Little, Chicago; F. R. Diering, Woodlawn, N. Y.; A. R. Gross, Chicago; William Falconer, Pittsburgh.

The question box discussion closed the evening program. The first was on the subject of opening graves; Mr. Clark said the uniform price is \$7.00. Some charge double in winter. The question of how many cemeteries sell lots without the right to erect monuments was answered by Mr. Lawson, who said that many cemeteries do not allow monuments in lots of less than six graves capacity. Referring to the cost of placing myrtle or ivy on graves there were various charges. One at \$5.00 for planting and \$5.00 for maintenance, another \$12.00 for planting and \$3.00 per year upwards.

THE THIRD DAY.

Friday, the last day of the convention, was taken up with a trip to Niagara Falls with the ride around the gorge and back to Victoria Park, where luncheon was served. After this a business session was held in an adjoining room.

The following officers were elected:

President—M. P. Brazill.

Vice-President—Thos. Wallis.

Secretary-Treasurer—Bellett Lawson, Jr.

Executive Committee—F. R. Diering, W. H. Atkinson, William Falconer.

A. W. Hobert read a paper on "Endowment of Mausoleums From an Architect's Standpoint." This was in the form of a letter sent to Mr. Hobert from an architect.

A vote of thanks was extended Mr. Hobert and also to Rev. Dr. Campbell, the Hotel Statler, Buffalo Steam Roller Co., the Buffalo Committee, especially Mr. Werrick, the Ladies' Auxiliary, the undertakers and others who furnished automobiles.

John Reid reported for the Committee on Location stating that invitations had been received from numerous places including St. Louis, Toronto, Florida and elsewhere. The committee recommended St. Louis as the next meeting place and the report was adopted.

Mr. Benson extended a cordial invitation to meet in Miami, Florida, at some future date.

Mr. Painter moved to increase the salary of the secretary-treasurer to \$200 from \$175. Vote passed.

CEMETERY MEN OPPOSE COMMUNITY MAUSOLEUM

Report of Committee on Community Mausoleums, presented at Buffalo Convention of Association of American Cemetery Superintendents, September 17.

A careful consideration of the subject of community mausoleums leads your Committee to the following conclusions:

1. The community mausoleum in its best type does not offer advantages over earth burial in the general run of well conducted modern cemeteries, while even at its best there are serious disadvantages in community mausoleum interment.

2. There is unquestionably at the present time a demand for community mausoleum interment, caused without doubt, by the widespread advertising and exploiting which has taken place within recent years, originating with individuals and corporations controlling certain so-called patented methods which it is desired to sell.

Your Committee thinks that this demand will continue so long as these commercial interests continue the advertising and exploiting, but we are very much inclined to doubt whether it will continue long should this advertising cease.

3. We can see no reason why any cemetery should not erect a community mausoleum, provided that the association is convinced that such a demand exists and will continue, for the use of such a structure, as will justify the expense of its erection and the setting aside of a surely adequate sum to be held in trust for its maintenance and repair.

4. We can see no objection where cemetery funds are insufficient, to an equitable and well considered arrangement with some other corporation to finance the proposition, provided that the design of the structure, the passing upon the quality of the material and the superintendence of the work, the subsequent control of the building and the setting aside of an adequate trust fund for maintenance and repair, be controlled by the cemetery association.

We can, however, see grave dangers in a contract between a cemetery association and an outside corporation by which the latter concern agrees to erect and exploit such a structure, reimbursing itself from the first proceeds of the sale of crypts, agreeing to turn over to the cemetery association what is left after it has satisfied its own demands, and is ready to pass on and exploit some other community in the same manner. An arrangement of this kind cannot too strongly be condemned, both from the standpoint of common fair dealing to the community at large, and of the subsequent welfare of the cemetery association. The natural tendency of a cor-

poration of this kind would be towards a flashy, showy construction; the slighting to the greatest possible extent of all expensive items leading to durability; and the setting aside of an entirely inadequate sum for the trust fund for maintenance and repairs.

5. Many structures of this kind heretofore erected have failed; many others on inspection give evidence that they will not stand for a long period of time. We know that the best designing and construction talent has been endeavoring, practically regardless of expense, to erect private mausoleums which will endure for long periods of time. Such structures have been erected at a cost per cubic foot far in excess of any amount that could be profitably invested in a community mausoleum, and yet there has been no such structure erected, so far as is known to your Committee, which does not require care and attention for its maintenance. The basis of most of the community mausoleums projects today is reinforced concrete construction, and in the more elaborate ones a facing over this of granite or other less durable stone. An inherent and insurmountable difficulty with the latter construction is the impossibility of so anchoring the outer shell to the inner structure that there will be no possibility of its giving way in time. There is also the question as to the durability of the inner structure itself.

We are told by persons professionally exploiting such buildings that reinforced concrete is imperishable, and are referred to various famous structures in other lands which have stood through long periods of time. Analysis of such examples generally shows them to be located in frostless or very mild climates, and we have no history of a large structure which has stood intact through long periods of time in a climate similar to our own, with its fierce summer heats and low winter temperatures. The question as to the durability of modern reinforced concrete construction is at best one of pure theory only. Generally, at least in the middle west, the aggregate used in concrete is a more or less soft limestone, which it is well known is not a durable material. Modern Portland Cement as it is now manufactured was not known a generation ago, and modern reinforced concrete construction is practically a development of the last couple of decades, hence we have no history of its durability or otherwise, covering any extended period of time. Add to this the admitted fact that bad design, poor material or careless workmanship will cause such construction to fail, and one

has reasonable grounds for expressing doubt.

The committee would not wish to be recorded as fearing that thoroughly well designed and well constructed reinforced concrete is not reasonably dependable for ordinary buildings and for commercial purposes. When one approaches the consideration of the community mausoleum, however, its proved durability should extend hundreds of years beyond what is necessary in other types of building. These structures may stand for a long period of time, but in the present state of our knowledge and in view of the defects which are constantly being shown, common good faith with the public requires that a surely adequate amount should be placed in trust, not only for maintenance and necessary ordinary care, but to provide for unexpected failures in parts of the structure. We believe that the best experts today would consider a depreciation of one per cent per annum in buildings of the most excellent type of construction to be a minimum. Your Committee believes, however, an additional one per cent per annum to cover repairs and maintenance in excess of possible revenue would be the very smallest amount which could be prudently considered adequate as an annual income. When capitalized on the generally accepted four per cent basis for trust funds this means a fund of 50 per cent of the cost of the structure. It is frequently pointed out that quite a revenue may be expected to accrue from the structure in the way of charges for opening the building, sealing catacombs, and the like. This may be true in the earlier years, but it is bound to diminish and will entirely cease when the catacombs are all filled. In case a safe provision were made for taking care of the maintenance and repairs for a reasonable term of years from other sources, so that the fund might be compounded and thus accumulate, a minimum of one-third of the cost of the building might be admissible. Anything less than these amounts your Committee is convinced can not be considered as safe or adequate, and these estimates are based on the building being of the very best type of construction. Any cheapening of construction and the possibility of less durability would necessitate a larger fund proportionately. Instances are known to your Committee, and undoubtedly to all members of this Association, where structures which have only been up a comparatively few years, show by their present condition that without question they will have to be entirely rebuilt within a comparatively

short term of years. There is no fund to rebuild them and the buyers of crypts therein have simply been swindled.

SUMMARY.

Your committee does not favor the community mausoleum, believing that earth burial is a far preferable means of disposing of the dead. We can see, however, where a demand exists, no objection to the erection of such structures in cemeteries, provided that they are erected by and controlled by the ceme-

tery corporation; that the design and construction are thoroughly good throughout, and above all that a trust fund, amounting to no less than one-half of the cost of the structure, is set aside and properly safeguarded, being held subject to the use of the income only for maintenance and repairs.

Respectfully submitted,

EDWARD G. CARTER,
Chairman.

NEW ROCHESTER CREMATORIUM

The old chapel in Mt. Hope Cemetery, Rochester, N. Y., has been converted into a handsome and modern crematorium, under the direction of the cemetery commissioners, and in point of construction

fire-proof as possible. There are two retorts, each twelve feet in length, five feet wide and six feet high. The interior measurements are: Length, eight feet, and width, two feet and eight inches. The

lining is a steel shell, three-eighths of an inch thick and braced with three-inch T-beams, twelve inches apart. Inside this shell, as a further lining, are nine inches of fire brick. Kerosene oil is used as fuel, under the Inglis system. A tank, containing the necessary oil, is used and the oil is conducted through pipes to the retorts by gravity, making a constant flow. The oil thus forced through the pipes enters a burner within a chamber eighteen inches square in the rear of each retort. Mixing with air, it forms a gas, and when burning produces an intense heat, especially when combined with the natural gases produced in the retort. Air from a tube passes over the burning oil, and the gas is forced into the retort, where it is met by air coming in through three flues, each of six inches diameter. The burning-gases pass directly over and around the body, thence under fire brick bed of the retort and finally to the chimney, where a second burner giving forth an intense heat destroys the remaining gases. The generation of heat at an adequate temperature is rapid, requiring two hours and from twenty to twenty-five gallons of oil for the incineration of an ordinary body.

The Mt. Hope Cemetery Commissioners, comprising V. M. Smith, C. W. Weis, L. A. Jeffreys and secretary and Superintendent J. W. Keller, have issued a booklet of rules regarding incinerations. The charge for an incineration is \$35, and it is recommended that burial in a family lot is the most satisfactory way to dispose of the ashes. Since the opening of the crematorium on March 1, there have been about fifteen incinerations.



and equipment takes rank among the leading structures of its kind in the country.

The original chapel building, in which the crematory is installed, has been enlarged, but the general architectural design has been practically unchanged. Unlike many crematories, it is not made conspicuous because of a large chimney. There is a chimney, of course, but it resembles a monument or part of the general design of the chapel exterior.

The remodeling of the chapel to make it conform to its new needs was done under the supervision of J. F. Warner, architect, and William L. Phillips, assistant. The chapel proper is done in old English oak in English Gothic style.

Off the chapel is the receiving room, adjacent to the two retorts in which bodies are cremated. In the retorts is burned crude oil, the oil being fed through a form of sprayer. The flames are fed by the oil and air, which generates gas. The body is placed in the retort in the casket, the casket and its arrangements remaining intact. The retort room is twenty-four feet long, twenty feet wide and sixteen feet high, and has been made as nearly

VIEWS
IN THE
NEW
ROCHESTER
CREMA-
TORIUM



PARK NEWS.

Competitive Park Plans Wanted.

The Commissioner of Parks, Borough of Queens, New York City, has decided to invite competitive outline sketch designs for the development of the new Telawana Park, in order to get as wide a diversity of designs as possible. There appears to be an opportunity in this case of developing a seaside park affording greater opportunities for originality than any other seaside resort in the world. This competition is open to all landscape architects and landscape engineers, whether resident of the state of New York or not. The prizes that are offered are as follows: First prize, \$500; second prize, \$200; third prize, \$100. Landscape architects or engineers desiring to submit plans may notify Hon. Walter G. Eliot, member of the committee, and will be furnished with a printed copy of the rules governing the contest, together with a topographical and location map of the property. Plans must be in the hands of the committee on or before noon of November 1, 1913, addressed to the Hon. W. G. Eliot, Commissioner of Parks, Borough of Queens, Richmond Hill, N. Y. The committee will examine the plans and report its findings to the competitors on or before December 1, 1913.

The group of civic experts and students of civics who left Washington and New York in July for a tour of European countries, under the auspices of the American Civic Association, has just returned. Richard B. Watrous, secretary of the association, was in charge of the party. The members of the party were given unusual opportunities to make careful investigations of the methods applied in the cities of Germany, France and England for efficient administration, with particular reference to the care of the streets, the disposal of household waste, the creation and maintenance of parks and the solution of housing problems, and the large general subject of comprehensive city planning. Four of the six weeks abroad were spent in cities of Germany, one week in Paris and a week in London, with two days at Brussels.

Improvements and Additions.

An important forward step was taken recently in the construction of the Eastern Parkway Extension in Long Island, New York, through Cypress Hills and Mount Carmel Cemeteries, when Richard T. Greene, president of the Cypress Hills Cemetery corporation, declared that he and the other directors of his association were ready to accept the latest plan for the road, which Chief Engineer Nelson P. Lewis, of the Board of Estimate has pre-

pared. The width and character of the road through the cemetery property has been one of the chief points of contention in the negotiations between the city and the cemetery officials. The cemetery directors were unwilling to assent to the building of any road which did not conform to the topography of the cemetery and its existing road system. They also felt that if a road were built at all it should be 150 feet wide. In the latest map the city has gone to considerable additional expense to meet the views of the cemetery officials in the matter. The road sweeps in broad curves through the cemetery and is carried across in places on ornamental bridges and viaducts in order to permit the cemetery roads to pass beneath it and thus prevent any interference with funerals by the speeding automobile traffic.

Plans for an elaborate gateway, 100 feet wide and to cost \$35,000, at the southwest entrance of Forest Park, St. Louis, have been completed by George Kessler, consulting landscape architect of the Park Department. The Municipal Assembly will be asked to make an appropriation so that the work may be completed next year.

O. C. Simonds, of Chicago, is to prepare plans for the laying out of the new North Park in Quincy, Ill., and also for a new entrance to South Park in that city.

The City Council of Beaumont, Tex., has purchased another park site of 14 acres and ordered that \$10,000 be appropriated for the improvement of the island between Brake's Bayou and Neches River.

The formal transfer of Jackson Mound

Park to the City of Memphis was made recently by the estate of Daniel Lake, deceased. The purchase price was \$85,000.

The men of the Civic Club of Clarksville, Ark., will improve a new park and a landscape gardener will be engaged to plot the grounds.

From the Park Reports.

The annual report of the Metropolitan Park Commission, of Boston, is an interesting book of 121 pages, detailing the year's work of this great park system. The reservations and parkways in the care of this board remain practically the same in area as last year. The slight changes made, and the reasons therefor, are stated in the secretary's report. The most important new acquirement is that made on Ocean Avenue, Revere Beach, to provide a location for much-needed stable, garage and storage sheds. There has been practically no extension of formal construction and development work, except in a few specific cases, which are referred to in detail in this report. In continuation of the work of previous years the improvement, and in a few places reconstruction, of parkways and formal roads, to make them better suited to stand automobile travel, has engrossed the attention of the engineering and division forces. In the woods reservations a few short pieces of new road have been built to improve the roads which were at first built rather hastily and in temporary form. Most of these are in the Blue Hills, where there is necessity for ways crossing the 4,700 acres of this Reservation, to provide intercourse between the towns bordering it and to enable the Reservation forces to reach the otherwise inaccessible portions of the Reservation, in which insect pests show a tendency to increase. Wm. B. de las Casas is Chairman of the Commission. Olmsted Brothers, advisory landscape archi-

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fects; John R. Rablin, engineer, and George L. Rogers, 14 Beacon street, Boston, secretary.

The annual report of the Commissioners of Cemeteries and Public Grounds of Portland, Me., notes substantial improvements at Deering's Oaks. The slopes adjoining the small pond and the ravine have been planted with shrubbery and vines, and the pond stocked with gold fish. Lights have been placed on the concrete

bridge built in 1911, at a cost of \$182.56. The work of reconstructing the roadways was begun during the latter part of the season and good progress has been made. The roadways were constructed of gravel macadam, with a width of 20.0 feet, exclusive of gutters. New catch basins were built to care for surface water and underdrains laid along the sides of the roadway. The total length of roadway constructed was 1,972.0 feet.

which was furnished by John L. Miller, of Quincy, Mass., and set for him by George Archer & Son, of Chicago. It is of Quincy granite, all polished, and is an artistic and beautiful design that has been executed with splendid workmanship throughout.

The design is an interesting modification of the "exedra" form to adapt it to the purpose of a private memorial. The wings are straight, and the buttressed effect secured by the projecting members on either side of the central die have been most effectively worked out by the designer to form pilasters surmounted by a conventionalized vase and plant. The wings are each in one stone, including the lower bases, and the step-like effect of the bases of the central upright member, polished down to the ground, have been harmonized and blended into the main structure with unusual skill. The lettering, also raised and polished, is handsomely executed and in keeping with the design. The monument stands in a choice location facing one of the avenues, and is backed by a fine growth of trees.

REPORTS AND PUBLICATIONS.

The Experiment Station of Massachusetts has just issued a bulletin which should prove of great value to all those engaged in greenhouse work. This bulletin is No. 144, The Relation of Light to Greenhouse Culture, by George E. Stone. The bulletin will be sent to all green-

CEMETERY NOTES

At a special meeting of the Board of Trustees of Holy Sepulchre Cemetery, Rochester, N. Y., it was directed that vases or other receptacles for holding cut flowers should be filled with earth in order to avoid decay of loose flowers remaining in stagnant water. It is the idea of the board to assist lot owners and those having graves at Holy Sepulchre Cemetery in every way towards maintaining the beauty and general good appearance of the cemetery.

An ordinance to prohibit the erection of mausoleums within the city limits is under consideration in Peoria, Ill. This ordinance has received the approval of the police and judiciary committee.

The Sugar Grove Cemetery Association, Sugar Grove, Ill., is attempting to raise \$10,000 for a permanent endowment fund to be used for the maintenance of the cemetery. The association already has \$5,800.

George Chandler, of Bingham, Utah, has offered to donate ten acres for a cemetery, providing some reliable organization will take care of it.

A. T. Studebaker, of Bluffton, Ind., is heading a movement for the incorporation of the Six Mile Cemetery, southeast of Bluffton.

A. H. Davidson, Superintendent of Forest Lawn Cemetery, Colma, Cal., and for many years in charge of the crematory there, has recently been granted a patent for a cremation furnace, described in patent No. 1,068,571, granted jointly to Mr. Davidson and S. Sundelius.

The annual report of the Commissioners of Cemeteries and Public Grounds of Portland, Me., for 1912, reports that no new cemetery work has been undertaken during the year. The Eastern and Western Cemeteries have received the usual care, also the cemeteries in the Deering section. There have been ten burials in the Western Cemetery, two burials at Stroudwater Cemetery, and one body placed in tomb at the Eastern Cemetery. The lots under perpetual care at the East-

ern and Western Cemeteries have received customary attention.

Handsome Monument, Well Placed.

Probably no finer monumental work nor finer landscape treatment of beautiful memorials can be found anywhere in this country than in the "Lakeside" section of Graceland Cemetery, Chicago. Here many of Chicago's first families who made fortunes with the rapid growth of the city have erected family memorials and tombs, and no expense has been spared either in the monuments themselves or in framing them naturally and beautifully into the landscape.

One of the finest memorials in this section is the "Carpenter," illustrated here,



CARPENTER MEMORIAL, GRACELAND CEMETERY, CHICAGO.
John L. Miller, Contractor; Geo. Archer & Sons, Setters.

Tarvia

*Preserves Roads
Prevents Dust-*



Road in Oakwoods Cemetery, Chicago, Ill., Constructed with "Tarvia X."

Experience with Tarvia at Oakwoods

For a number of years "Tarvia A" has been used in Oakwoods Cemetery, Chicago, to preserve the road surface against the increasing automobile traffic for which ordinary macadam was proving insufficient.

The good results shown during several years of wear prompted the adoption of the heavier and more thorough "Tarvia X" application in 1911. The results shown at the end of a year are described in the following letter:

Chicago, November 9, 1912.
"Tarvia X" used during the season of 1911 has shown favorable results; in fact, it is the most practical treatment thus far found on our roads. We have extended its use to additional driveways during the present season and contemplate further applications next year.

(Signed) EDWARD G. CARTER, Supt.
Oakwoods Cemetery Assn.

The best testimonial to any product is repeated orders. The most striking feature of the Tarvia business is the fact that when a thorough test of Tarvia is made in a given locality, orders keep coming every year thereafter, in increasing quantities. Many towns, after experimenting with various road preservatives, have settled down to the steady use of Tarvia to the exclusion of all other dust layers and road binders.

Tarvia is a dense viscid coal tar product which forms a plastic matrix around the stone and prevents raveling by automobiles and water. Its cost is so low as to be more than repaid by the saving in maintenance.

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AND
LANDSCAPE GARDENING



ESTABLISHED 1890
Devoted to the Improvement of Parks,
Cemeteries, Public and Private Grounds
Published on the 15th of the Month by
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H. C. WHITAKER, Vice-Pres. and Gen'l Mgr.
Subscription \$2.00 a Year { Foreign, \$2.25
Canada, 2.25

house men in the state and may be had by others interested on application to the Massachusetts Agricultural Experiment Station, Amherst, Mass.

Charter and By-Laws and Schedule of Prizes, Massachusetts Horticultural Society; W. P. Rich, Secretary, 300 Massachusetts Ave., Boston.

Descriptive Circular of Riverside Crematorium; Hiram Babcock, Manager, Spokane, Wash.

List of Trees and Shrubs from Maywood Nursery Co., Maywood, Ill.

Illustrated descriptive catalog of Buffalo Pitts Road Rollers from Buffalo Steam Roller Co., Buffalo, N. Y.

Wholesale catalog, Fall, 1913, from Phoenix Nursery Co., Bloomington, Ill.

"Hardy American Rhododendrons and Specimen Evergreens, for Fall Planting," from Harlan P. Kelsey, Salem, Mass.

"Trade List of Peonies," Fall, 1913; Frank Wild Floral Co., Larcocie, Mo.

Vaughan's Seed Store, Chicago; Fall, 1913, issue of "Gardening Illustrated."

The new 1914 catalog of the Philadelphia Lawn Mower Co., just published is one of the completest and handsomest lawn mower books issued. The high quality of the illustrations of all of the details of these mowers present them in unusually attractive form. The cover of the book bears a handsome picture of Independence Hall which graphically identifies these machines with the city of Philadelphia.

FRONT COVER PHOTOGRAPH.

The cut illustrated by The Stewart Iron Works Co., Cincinnati, O., on the front cover of this issue, shows a very attractive and appropriate design of entrance gates and fence for either cemetery, park or playground. This design is not what would be classed as ornamental, in the full meaning of the word, but is rather a plain, practical, substantial style of entrance that is suitable for and will harmonize nicely with the landscape scheme of most any cemetery, park or playground. The plain square pickets set off by ornamental scroll designs, worked in between them at the

(Continued on Page VIII.)

Elms, Silver Maple, Catalpas and Carolina Poplars

We have a surplus of these trees, one of the finest stocks in the middle west and in the right size, too, up to 2 inches. Let us quote you on them.

A. B. AUSTIN NURSERY CO.

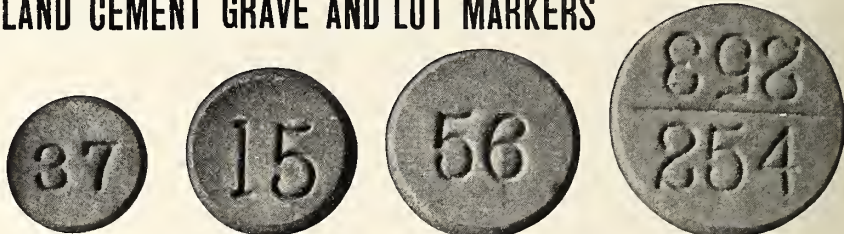
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Made 3-inch, 3½-inch, 4-inch, and 5-inch diameters; 8, 10, and 12-inch lengths, and all kinds of top marks. Nearly white in color and practically everlasting. Made under Haase Concrete Wks. Patents No. 680,432 and 734,854. For circulars and prices, Address OAK PARK, ILL. Cemeteries West of Rockies Address, LEO. G. HAASE, Pasadena, California

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A Field of Iris

HARDY HERBACEOUS PLANTS

PEONIES—3 to 5 eye division, splendid varieties for Parks and Cemeteries. 110 varieties.

PHLOX—Field-grown, 35 varieties; fine assortment of colors; some choice new varieties.

IRIS—German, 17 named choice varieties; Japan, 12 varieties; single and double.

YUCCA—Filamentosa, 3-year clumps.

Write in official capacity for Free Price List with Special Prices to Park and Cemetery Superintendents.

Address the

FRANK H. WILD FLORAL CO.
SARCOXIE, MISSOURI

LEMON OIL CO'S STANDARD SOLUBLE IN WATER INSECTICIDE NO ODOR NO POISON

Guaranteed Under the Insecticide Act, 1910. Serial No. 321

Save your plants and trees. Just the thing for Greenhouse and outdoor use. Destroys Mealy Bug, Brown and White Scale, Thrip, Red Spider, Black and Green Fly, Mites, Ants, Insects on Rose Bushes, Carnations, etc., without injury to plants and without odor. Used according to directions our Standard Insecticide will prevent ravages on your crops by insects.

Non-poisonous and harmless to user and plant. Leading Seedsmen and Florists have used it with wonderful results.

Destroys Lice in Poultry Houses, Fleas on Dogs and all Domestic Pets. Excellent as a wash for dogs and other animals. Relieves mange.

Effective where others fail.

½ Pint . . . 25c; Pint . . . 40c; Quart . . . 75c
½ Gallon, \$1.25; Gallon, \$2.00; 5 Gal. Can, \$9.00
10 Gallon Can \$17.50

Dilute with water 30 to 50 parts

For Sale by Seedsmen and Florists' Supply Houses

If you cannot obtain this from your supply house write us direct

Lemon Oil Company Dept. U
420 W. Lexington Street, Baltimore, Md.

Directions on Every Package.



WHAT one cemetery superintendent

has done can be done by others. We have one agent who sold nearly one car of Red Granite aside from other materials, this spring.

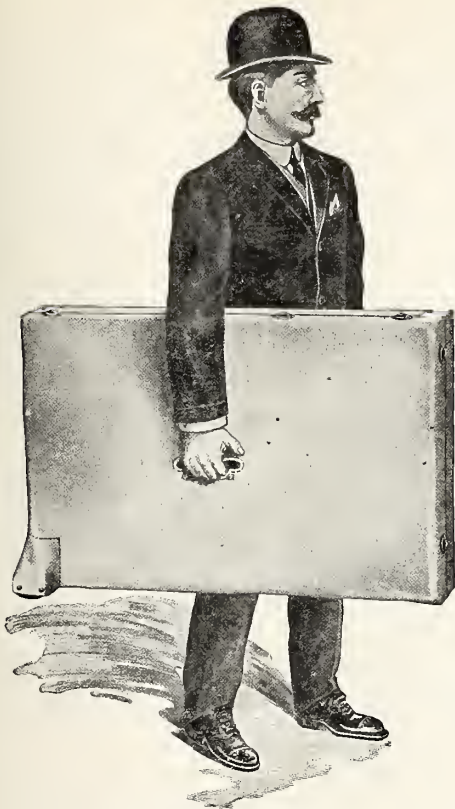
You are in a position to get the business, and why not, instead of helping others and getting practically nothing for your services?

Our terms are the most liberal ever offered agents in our line. Write for particulars. We have over 1,000 agents.

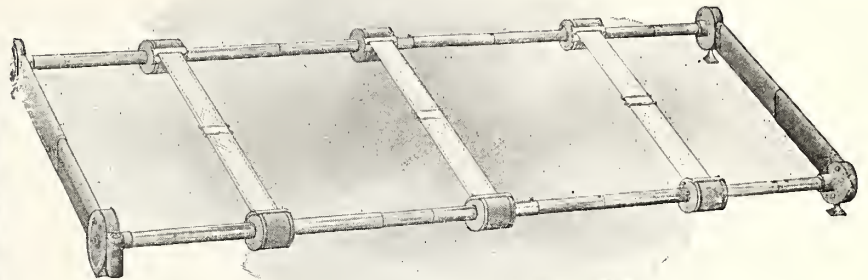
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National Full Telescopic Casket Lowering and Raising Device



*Carried in one small case. Never dissembled,
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*Frame all aluminum and steel, beautifully finished. Telescopes to all sizes
and carries any weight required.*

Commendable Features

THE operation of lowering the casket is under the absolute control of the operator. Any speed or checking the descent of the casket is at his will.

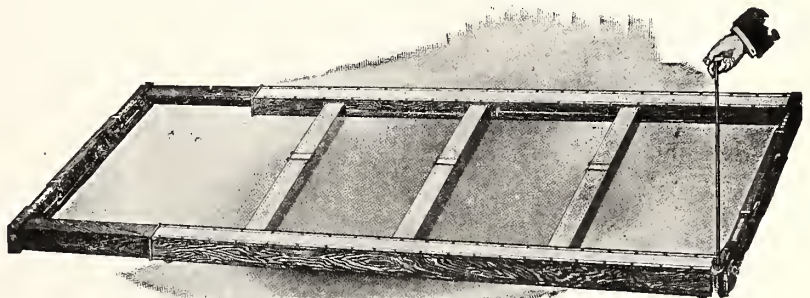
Telescopes to take any casket or ordinary steel vault, and no sections inserted or taken out to obtain size desired.

Our Perfection Safety Brake is a simple, yet a positive control, non-corrosive; will not get out of order.

Webbing housed; not left exposed to storms or to dangle in the dirt, but held in place.

National Short and Quick Adjusting Device

Has a strong and beautifully finished oak frame. Fully adjustable. Is equipped with all modern improvements.



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National Burial Device Co.

C O L D W A T E R :: M I C H I G A N

NATIONAL Devices Long Tested and Not Found Wanting

top and bottom, give the gates a very charming effect, and is a style of construction which is becoming very popular, especially for cemetery, park and playground inclosures.

We have shown at different times on the front cover of this publication quite a number of various styles of iron fence and entrance gates made by this well-known firm. These photographs should be of special interest to all cemetery, park and playground superintendents who are contemplating improving the grounds in their care by erecting a suitable iron gateway entrance and iron fence inclosure. Here we might add that every cemetery association interested in protecting the grounds, plantings and securing the graves of lot owners against vandals should not delay any longer than is absolutely necessary to add this practically inexpensive and far-reaching improvement. If the funds are not available for buying both the fence and gates, a nice pair of entrance gates and the necessary front fence to use in connection therewith would add a wonderful improvement, and then the balance of the fence could be erected at some future date. The entrance to a cemetery creates the first and most lasting impression in the minds of visitors, and wherever possible this should be of a pleasing and prepossessing nature. For any information, such as specifications, prices, drawings, etc., regarding the style of entrance gates shown on the front cover of this issue, correspond with The Stewart Iron Works Co. They make a specialty of this class of work.

Dreer's Hardy Perennials

We are headquarters for Hardy Perennial Plants and offer the largest assortment in the country.

For September and October Delivery

we offer over one hundred thousand Hardy Herbaceous Paeonies, a quarter million Japanese and German Iris and over half a million Hardy Perennial Phloxes, all in the most approved up-to-date varieties and excellent stock for Park and Cemetery use.

If you have not received a copy of our wholesale price list, offering these popular plants, we will be pleased to supply same upon receipt of application.

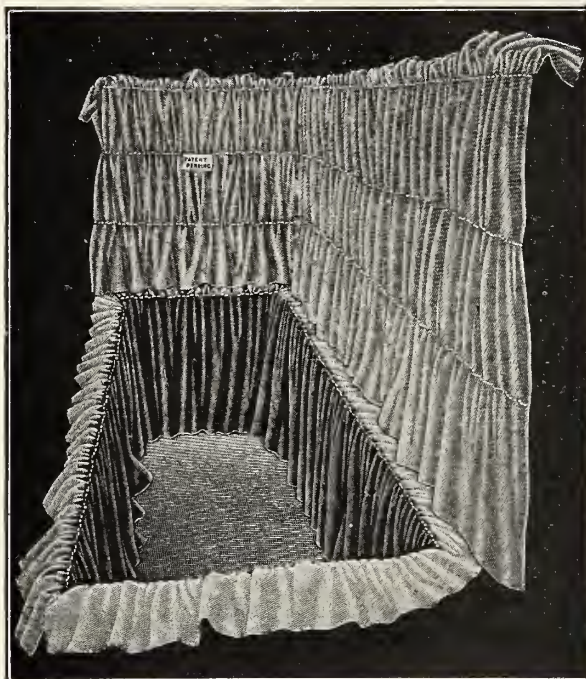
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colors and prices to suit everybody.

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made to order. Our olive green tents blend with nature and take away the fair ground appearance of the ordinary tent.

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Our olive green duck dirt covers last four times as long as any oil cloth cover, and always look better.

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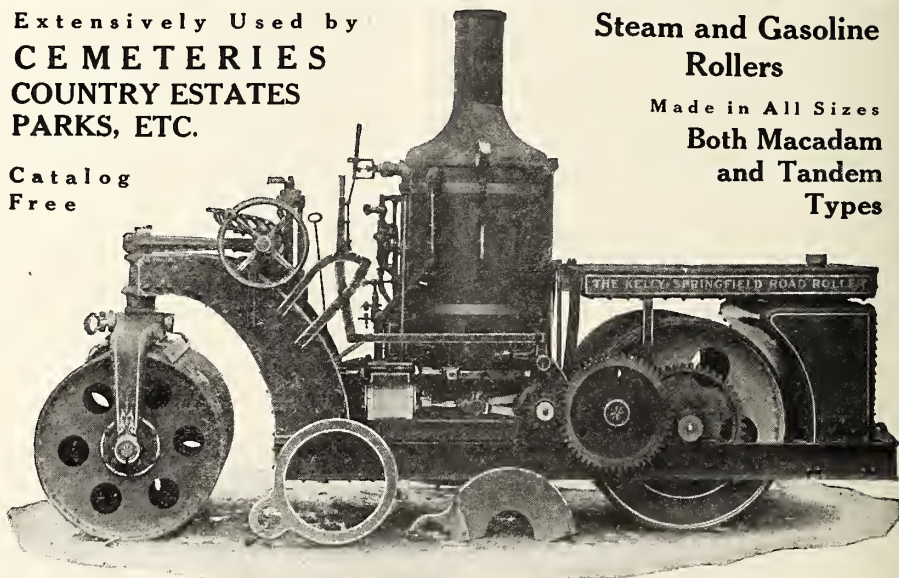
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**CEMETERIES
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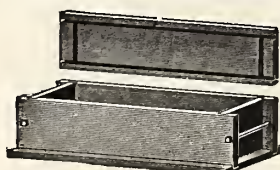
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For Interior of Mausoleums.

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STRUCTURAL SLATE OF ALL KINDS

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BRANDT MAUSOLEUM, BELLEVUE, IOWA

New World Marble

will more than make up for Old World Waste. There seems to be no end to the piles of broken sculpture that the treasure-hunters are bringing forth. Only recently there was found at the Baths of Caracalla, in Rome, an underground marble temple. It was buried beneath a mass of battered carved work. On every side there were marks of the vandal's hand—marble statues, bas-reliefs, columns and tablets—nothing was exempt from the fury of the invader.

Yet, in spite of all this loss, the world was never so well supplied with marble memorials as it is today. In the mausoleum field the development has been particularly marked. The Brandt structure which is given prominence on this page was constructed out of Light Pittsford Valley marble for F. W. Wray & Co., Maquoketa, Iowa.

VERMONT MARBLE COMPANY

PROCTOR VERMONT

BOSTON—NEW YORK—PHILADELPHIA—WASHINGTON
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Wanted—Someone to become interested to the amount of \$10,000 to \$40,000, the other parties interested furnishing a like amount, in one or more parked up-kept cemeteries located in the best cities in Texas. Prefer someone who can take the general supervision of the business. Answer care Drawer 55, Waco, Texas.

Position wanted as superintendent of cemetery by competent and energetic man. Age 36, married, no bad habits; strictly temperate. Am experienced in bookkeeping; selling lots; work of all kinds. Had years experience as entire manager of cemetery. Address "E. L. F., No. 602" care of Park and Cemetery.

Experienced cemetery superintendent of the east desires an offer to enter a larger field. Progressive, temperate, married man. 11 years experience, highest reference, member American Association of Cemetery Superintendents. Present position offers too little activity. Address, J. A. C., Park and Cemetery.

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used for this Fall's planting, means a hardy lawn of beautiful, velvety appearance next Spring. For embodied in Thorburn's Lawn Grass Seed Mixtures is the accumulation of over 111 years of study, experimenting and practical application. We have a Mixture just suited to your conditions. Write us TODAY for quotation. And remember our broad experience in growing grass is at your command.

Have you received a copy of Thorburn's 1913 Bulb Catalog? It's mighty interesting and instructive. A copy awaits your request.

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Saves Girdled Trees, Heals Cuts and Wounds, Prevents Decay, Stops Bleeding in Pruning, Cures Fungus Growth.

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Surveys, maps and plans for development of all classes of property.

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Cast Iron Grave and Lot Marks

Marks for Numbering Graves, Lots and Sections

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CANADA UNLEACHED HARD WOOD ASHES

Beautiful lawns may be had by use of pure unleached wood ashes. They are odorless, clean and cost less than any other fertilizer. Used in the principal parks and cemeteries. Send for price delivered.

GEO. L. MUNROE & SONS : Oswego, New York

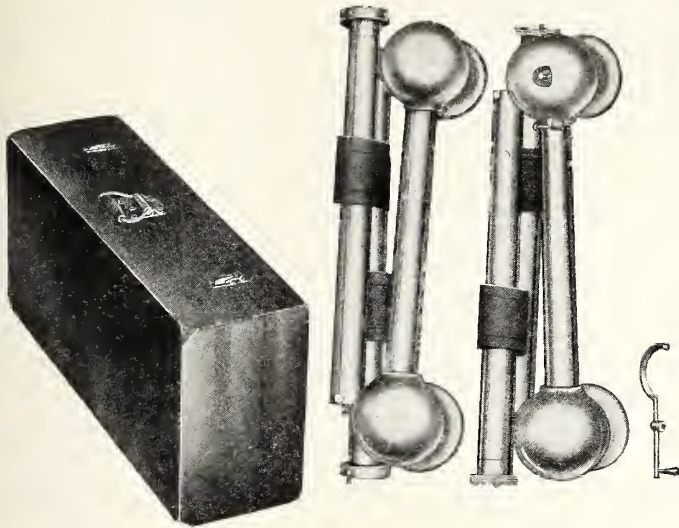
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for trees 1 to 2 feet in diameter, platforms, skids, tackle, drays, and tree wagons to carry up to 20 tons. Easy to load and unload. Move trees with or without a ball. Send us a memoranda of the number, size and kind of trees you intend moving, and we will estimate on renting or selling you the necessary apparatus. I have moved thousands of big trees in the past several years, and have been successful with most varieties.

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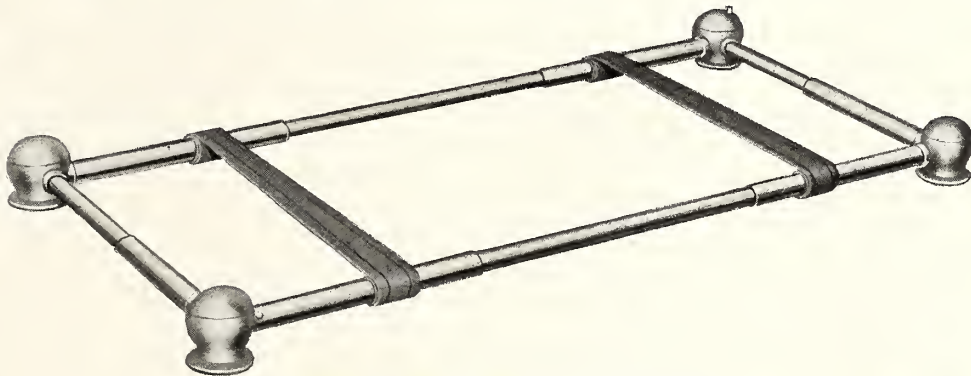
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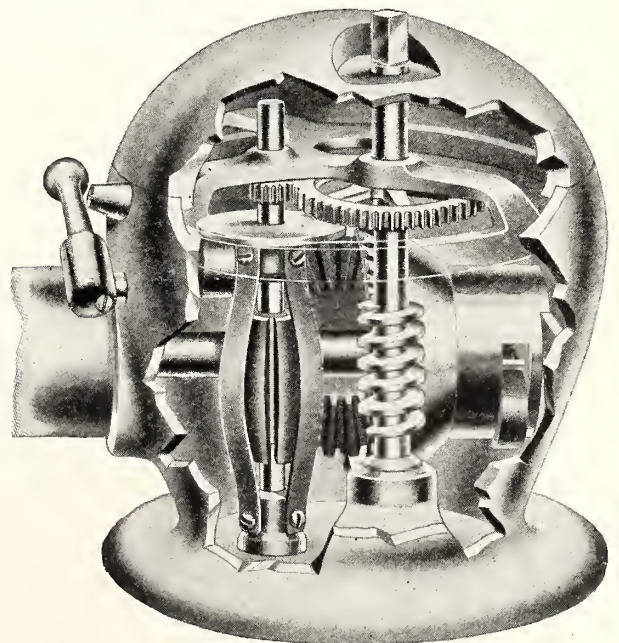
**"Safety
First"**



**"Safety
First"**

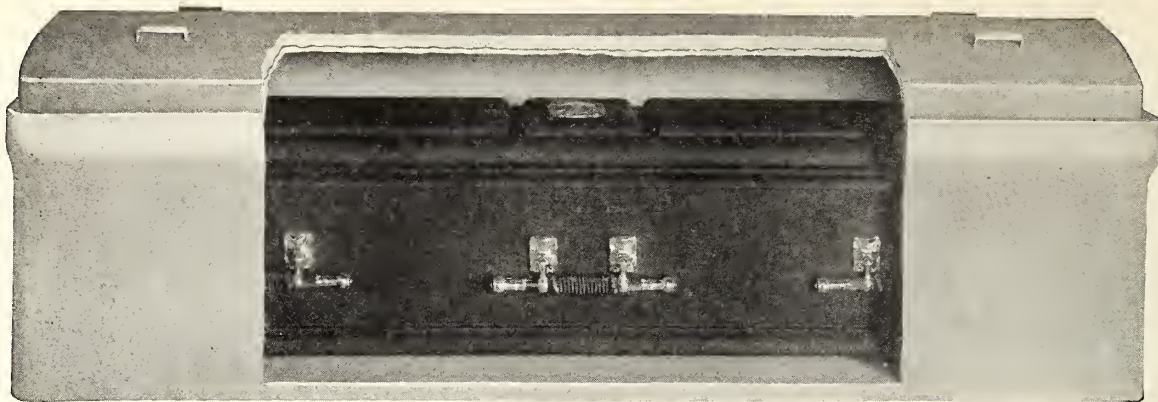
Cemetery Model—Rigid, Extensible Frame

"SAFETY FIRST" is vital. When with safety, you have dignity in the slow, even descent of the casket into the grave, you have simplicity of operation, ease of control, together with beauty in the design and richness of the finished device—then you surely have a device that helps to reach the ideal in cemetery funeral work.



The Automatic Control
Stops and Starts by Touching the Lever

Frigid Fluid Co.
Chicago :: Illinois



The National Steel Reinforced Cement Burial Vault

The National Vault is made by water-proof process throughout with 24 gauge expanded metal, making it absolutely water, germ and ghoul-proof, and will support any weight put upon it incidental to burial. An everlasting receptacle that can be removed from the ground at any future time without fear as to appearance or condition.

Visible seal which is absolute. The 'National' is the only light weight cement burial that has stood the test of years of experience. Sells at a price within reach of all and gives a handsome profit.

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THE NORWALK VAULT CO.

The National Mold which produces the National Vault is made of 13 gauge steel and is substantially built; wet process used on walls and bottom of vault; no troweling being necessary. Anyone can operate under our instructions.

More National Molds and Vaults in use than all others combined.

Cemetery associations and superintendents—a chance to give the best at a large profit to yourselves.

Write for Our New Catalog Today

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WEEDS are often undesirable in ponds, streams, rivers, lakes, etc. Please notice the simple and effective operation of the **Submarine Weed Cutting Saw** above. The weeds are cut at the roots and floating down stream. The device may be handled in lengths to a great extent from the banks, or just as well from boats on larger lakes. In use by many Parks and Cemeteries, and highly recommended here and abroad. Write for illustrated circular, references, etc.



Gold Medal, Belgium, 1909 Silver Medals, Austria, 1909; Pueblo, Col., 1910

ASCHERT BROS., Cedar Lake, West Bend, Wis.



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as designed and built by us can be operated economically, expeditiously, and with entire absence of smoke. The building need have no features architecturally objectionable. We design, build, and equip crematories. Correspondence solicited.

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WHY

buy expensive markers when you can make your own at a very low cost on the **LAWSON CEMENT MARKER OUTFIT**? No better marker can be found or made.

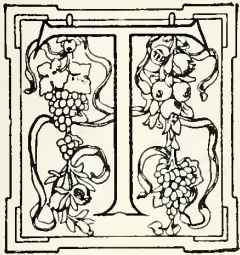
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Bellett Lawson, Jr.
Care **ELMWOOD CEMETERY**
River Grove, Ill.

Order Your Supplies

from firms that advertise in Park and Cemetery and give the paper credit for the introduction when you write.

Perfect :: Simple :: Safe



THE BOMGARDNER

Sectional Double Telescoping Lowering Device. No complicated mechanism, to be affected by every change of temperature. It is entirely controlled by two friction brakes, each acting independently, either one capable of supporting the entire weight.

The operator controls the machine while standing in a dignified, erect posture.

The BOMGARDNER has the only perfect center detacher as regular equipment; this can only be released when the casket reaches the bottom of the grave, and the webs are slackened for the purpose.

But, if one piece webs are desired, no device is better adapted to the use of this style than is the BOMGARDNER.

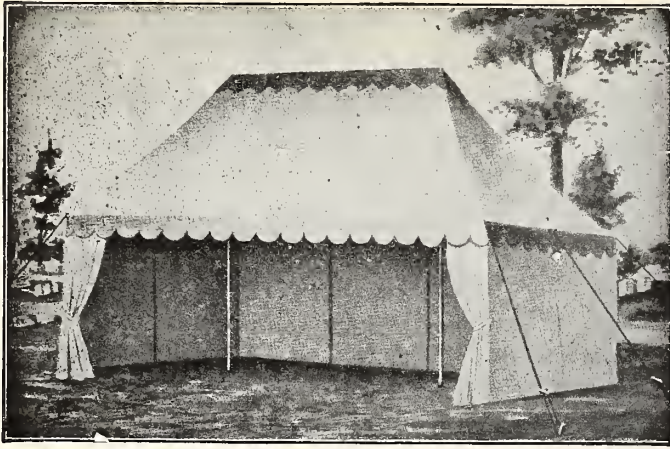
We use three webs for *perfect* safety.

The smallest adjustment is 20 x 44 in.; the largest 34 x 95 in. Any size, by inches, obtainable between these extremes.

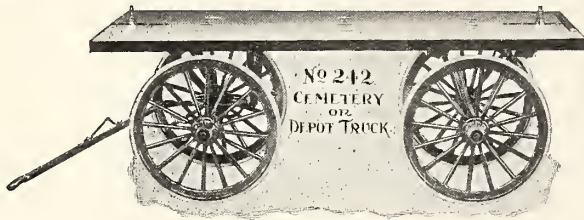
FOR FURTHER INFORMATION, WRITE

Bomgardner Manufacturing Co.

Cleveland, Sixth City



Durfee Grave Tents are made with detachable walls and provide protection against storm, wind or sun. We make 126 different sizes and qualities.



This carriage is a very useful and appropriate conveyance in cemeteries having suburban train service, also for conveying a body from hearse to train; has rubber tired wheels, and is finished in dark green with black trimmings.

Is the health
and comfort
of your
citizens
worth
considering
?

Write for detailed
description and prices



No. 1181

Durfee Grave Dirt Cover
Made in oval form, of green duck,
9 feet by 16 feet.



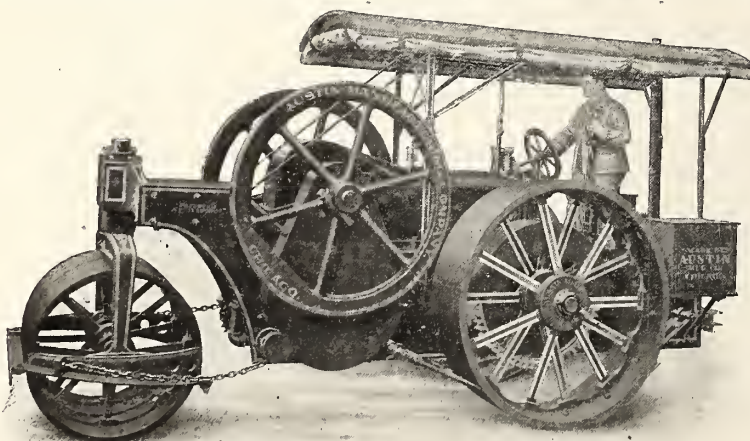
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Durfee Grave Lining
will fit any grave, is a handsome
design and has been engraved at a
large expense. Our circular shows
four other patterns.

DURFEE MANUFACTURING COMPANY, Grand Rapids, Mich.

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is used by hundreds of road builders in the United States and many foreign countries. The Russian Government has recently ordered six more Austin Rollers, bringing their total in use up to 24 Austin Motor Rollers.



The following prominent cemetery
and park boards use Austin Rollers:

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Mt. Olivet Cemetery, Detroit
St. Adalbert's Cemetery, Chicago
Oakwoods Cemetery, Chicago
Spring Grove Cemetery, Ohio
New York City Parks Board
Chicago Park Commissioners
Minneapolis Park Board, etc., etc.*

Austin-Western line of Road Machinery is the most complete and most modern in design of all on the market.

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Our Greatest Ideal Memorial Fountain — Roads and Trails in
Our National Parks—Beautiful Cemetery Memorial Well Placed—
Preparing Earth Roads for the Winter.



IRON FENCE AND ENTRANCE GATES FOR LITTLE LAKE CEMETERY, PETERBOROUGH, ONT.,
CANADA. See Page 184

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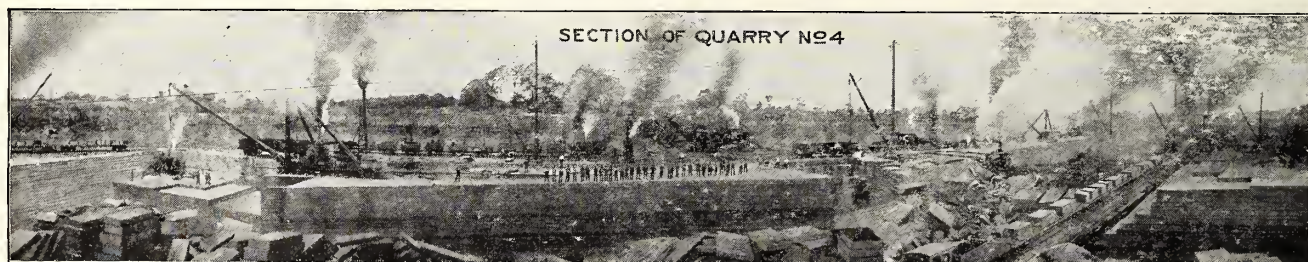
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VOL. XXIII

NOVEMBER, 1913

No. 9

EDITORIAL

Attempts At Cemetery Taxation

New aspects of the question of cemetery taxation have recently appeared in several states, and attempts to tax cemeteries in one way or another are frequently being made. Every cemetery organization should keep informed as to the status of public opinion on this question and as to the legal aspect of the question, especially as to the laws of the state under which it operates. In Boston, Judge Crosby, of the Superior Court, recently made a finding of \$25,153.50 for City Collector Parker in his suit against the proprietors of Mt. Auburn Cemetery for a tax assessed upon the proprietors of the cemetery for the year 1912. The proprietors of the cemetery claimed that the tax in question was assessed upon the defendants as owners of certain personal property which they claimed was exempt from taxation. The defendants further claimed that the corporation was not an inhabitant of the city of Boston, nor was it liable to be taxed by the city of Boston upon its personal property. On behalf of the city of Boston it was claimed that the principal place of business of the corporation was in Boston, where the trustees held their meetings and where the treasurer had his office, and that, therefore, the domicile of the corporation was in Boston. The court took this view of it. Heretofore the cemetery had paid no personal taxes, and will not be obliged to pay any hereafter, since the legislature this year has exempted all cemeteries from such payments in future in an act passed as a result of the suit of the Town of Milford, which was recently reported in these pages.

The Union Cemetery Association, of Kansas City, has asked for an injunction to restrain the city from selling part of the grounds

of the corporation for taxes. The city treasurer already has advertised some of the ground of the association for sale. It is alleged in the suit that the city has no right to tax any of the property owned by the association because it was incorporated by act of the legislature as a cemetery association. A similar injunction suit is now pending to prevent the city from collecting last year's taxes. If the verdict favors the cemetery company, it will give added strength to the cemetery's injunction suit to prevent the city enforcing an ordinance prohibiting burials there. The injunction was denied in the Circuit Court a year ago, but the Supreme Court reversed and remanded the case. Representatives of twelve organizations in the Borough of Queens, New York, whose efforts to get the legislature to tax cemeteries have been noted in these pages, at a recent meeting decided to confine their work to making an effort to compel the cemetery corporations to pay their share of assessments, rather than take in the broader field of attempting to force them through legislation to pay taxes. As an example of the anti-cemetery feeling in this locality, one of the speakers at this meeting is quoted as follows: "Cemeteries were originally exempted from taxation because in years gone by they were real charitable organizations. But they have now developed into nothing but pure money-making propositions. In the old days the idea of the cemetery corporation paying dividends was never taken into consideration. It is almost beyond conception what income some of them yield to stockholders." It is unfortunate that local conditions such as are prevalent here should give such widespread publicity to the erroneous idea that cemeteries generally are profit-making institutions.

Editorial Notes

The Toledo, Peoria and Western Railroad Company, an inter-urban line connecting a number of Illinois towns, has, it is reported, been pursuing an enlightened policy of parking its station grounds and turning them over to local authorities as public parks. Various towns along both divisions of the line have taken advantage of the company's offers and have made small parks out of the company's lands. This is true at Washington, El Paso, Fairbury, Watseka and other Illinois towns. While this property might have been leased to industries at these places, it would have very much marred the landscape, and to avoid this and retain the favor the citizens have done a great deal. The company also maintains a florist, a gardener and a forester to beautify its own station grounds, thus avoiding the dirt and filth often found near the railroad stations.

There is a law in Illinois which permits the organization of district park systems without reference to city, village or township lines. The officers of such an organization have power to purchase property and to build roads and drives and do such other acts as are necessary for the development and improvement of the system. Under this law citizens of Rock Island have proposed a comprehensive system which would include the banks of the Mississippi and Rock rivers as far east as Watertown on the banks of the former and as far as Carbon Cliff on the latter, with cross-drives and parks at intervals between. Definite plans for the work have not yet been formulated.

Deputy Sheriff N. P. Tanner, of Shreveport, La., recently had the novel experience of taking possession of a cemetery on a writ of execution. The writs of seizure were issued for the execution of judgment in a suit by the city of Shreveport against the St.

Joseph Catholic Cemetery Association for the cost of paving, amounting to between \$1,300 and \$1,400. The case was won by the city in the District Court. On appeal to the Circuit Court, the former judgment was affirmed. The sheriff was ordered to make the seizure with a view to collecting the amount of judgment.

The largest tree in the United States is said to be the "Mother of the Forest," a giant redwood in the Calaveras big tree grove in California. It is supposed to contain 140,619 board feet of lumber. There are, however, many claimants for the honor of being the "largest tree" and the "oldest tree," and these claims, according to foresters, cannot always be verified.

David Z. T. Yui, formerly secretary to the Vice-President of the Chinese Republic, is now traveling in this country to learn modern methods for adoption in China. In speaking of his work, Mr. Yui said: "In the matter of forest conservation the United States profited much by looking upon the disasters which were the result of the Chinese neglect of forestry. This was a great warning to you. Now we wish to profit by the improved methods of forestry which the United States has discovered and applied."

There are about thirty-seven pines native to the United States, of which twenty-five are Western species and twelve Eastern.

Germany is said to have an oversupply of foresters, so that well-educated men have hard work to secure even inferior positions.

Squirrels collect much of the seed used for planting by the forest service.

To secure a merit badge in forestry, boy scouts are required, among other things, to identify twenty-five kinds of trees.

OFFICIAL COMMUNICATIONS

H. S. RICHARDS, Chicago, President



AND CONTRIBUTIONS

J. J. LEVISON, Brooklyn, N.Y., Sec.-Treas.

ASSOCIATION EMPLOYMENT BUREAU

"After sixteen years of continuous service I have resigned my position as superintendent of parks in the Park Department of Kansas City, Mo., to devote my whole time to consulting landscape work. I have opened offices at 715-717 Republic Bank Building, Kansas City.

"I wish to keep in touch with all of the boys of the association, however, and retain my membership, and will always be glad to see any of you who may be passing through this way.

"My experience covers the past sixteen years of close application to landscape work under the constant supervision and direction of Mr. George E. Kessler, not only in the laying out and building of the Kansas City park system, but in touch with much of his practice in other directions, designing and improving private grounds and other landscape work.

"I will give my personal attention and best efforts to all landscape work entrusted to me for designing home grounds, country estates and municipal park and boulevard systems, including good road pavements."

W. H. DUNN.

Kansas City, Mo.

John L. Mearns, 415 Earlham Terrace, Germantown, Philadelphia, Pa., is looking for a position in some park system. His experience was obtained under landscape architects in New York, Boston and Philadelphia, where he was employed in designing, drafting, surveying and superintending three planting jobs. He also had experience in nursery work, arboriculture and forestry and as assistant to a park superintendent.

* * *

W. H. Robinson, of the Peerless Landscape Co., 205 Cherry street, Chattanooga, Tenn., desires a good, practical landscape man. He says: "I have a good opening for the right kind of a man who is willing to work for a future. The climate here is such that we can work all winter, which is quite an advantage over Northern cities. A man that is willing to work can put in full time the year around. Would prefer a young single man. I am employed by the Easterly Nursery Co., of Cleveland, Tenn., and my work requires a man who is capable of beautifying homes and setting my shrubbery, etc." All communications should be addressed to Mr. Robinson.

NEW YORK IDEA OF A ZOOLOGICAL PARK.

Address before the Denver Convention of the American Association of Park Superintendents by Herman W. Merkel, Forester, New York Zoological Park.

Until the year 1899, New York City had no real zoological exhibit. The Menagerie in Central Park was well enough as such, but compared with the zoological gardens of Europe, and those of Philadelphia and Washington, it did not reflect any particular glory on the city.

For that reason, a number of gentlemen, under the leadership of Mr. Madison Grant and Prof. Henry F. Osborn, in 1895, formed an association called the New York Zoological Society, with its foremost object of establishing in the city of New York a zoological park, and, incidentally, for the protection of American game, and the promotion of zoology.

After obtaining a charter from the state, this society entered, in 1897, into an agreement with the city, which has worked out very well.

By this agreement the city granted the southern portion of Bronx Park to the Zoological Society, under the condition that said society within three years of such grant should establish a zoological park,

furnishing the original equipment of buildings and animals, and expending the sum of \$25,000 of its funds for this purpose. This expenditure was a guarantee of good faith, or in other words the city was not asked to enter into a partnership with a young and untried society without having

the junior partner put up some of the capital.

It took some time and work for the society to collect this money from its members, to be made a present to the people of the city, but the money was donated by public spirited men and women and spent long before the stipulated time.

The place selected for the Zoological Park could hardly have been more suitable had it been made to order. Here were hills, rocks and broad meadows; swamps that could be made into ponds and lakes, a beautiful stream with two falls, and, above all, a glorious forest of fine oaks, gums, maples, etc., and many large single trees, carefully preserved by the Lydig family, who for eighty years had owned these lands.

In the meantime, Dr. W. T. Hornaday, the Director of the Park, had, in behalf of the Zoological Society, studied all of the larger zoos in Europe, and with the advice of several other men, had completed a plan of the Zoological Park.

A zoological park and a zoological garden differ just as a garden and park differ, and since all of the old zoos are gardens, this plan was different from all others. Where the small gardens have yards, the park has large ranges, sometimes several acres in extent, with steel wire fences that are almost invisible. Everything else in the Zoological Park is on a correspondingly large scale, for one of the maxims of the Society is that no animal shall be kept in confinement that is uncomfortable, and that all efforts should be made to give them all the room they required for proper exercise and comfort. However, the plan was ready, so that in 1898 the actual work was started.

How we did work, and under what ad-



PERCHING BIRD HOUSE AND WALRUS POOL, NEW YORK ZOOLOGICAL PARK.



CONCOURSE, AT ENTRANCE TO NEW YORK ZOOLOGICAL PARK.

verse conditions! When one looks back upon the apparent chaos of sewer, water, drainage, cellar, pond and road excavating, blasting of rocks, or stone, concrete and steel work, mired teams, of mud and mosquitos and malaria, it is a matter of wonder that on November 8, 1899, we had the park ready for the opening. Not the Zoological Park as it exists today, it is true, but still a fine zoological park, having an exhibition of 781 animals. Since that time progress has been steady, at times rapid, until now the park contains fourteen large animal buildings, and thirty-five other installations, harboring nearly 5,000 animals. Which means over 1,000 more than any other institution in the world, and all this has been accomplished in fourteen years.

Nor is the planning or building finished. New improvements suggest themselves from time to time as needed. This year we are erecting a yak shelter. A building sixty feet square, of huge blocks of stone, which will harbor besides yaks, a happy family of kangaroos, cassowaries and emeus, etc. A large three-story and basement work shop building, and one for park service, containing an ice plant, chill and cook rooms, are also just being finished. Projected, are a hospital, quarantine station, slaughter-house, morgue, and dissecting room, and an anatomical laboratory.

Entering the Zoological Park from the north by the principal of the six entrances, in connection with which there is a concourse for automobiles and carriages, the first object that strikes the eye is a beautiful antique fountain from Como, Italy, which was presented to the Zoological Park. On either side, the concourse is flanked by a planting of various evergreens, and fronted by an Italian Garden. Mounting a series of broad stairs, we arrive upon what is now called Baird Court, where the largest buildings have all been placed.

Here is the Elephant House, Lion House, Primates House, Large Bird House, and the Administration Building, which, besides the offices of the Director, contains

the finest collection of game heads, antlers, tusks, etc., in the world.

The Elephant House contains five elephants, two rhinoceroses, four hippopotamuses, and some tapirs. Among these are two great rarities, a pygmy elephant, and three pygmy hippopotamuses. The pygmy elephant is, I believe, the only one of its kind in captivity. It is now about five feet high, weighs 1,600 pounds, and is nearly full grown. Very little is known about its habits in a wild state. The pygmy hippopotamuses are also very rare in captivity; in fact, our three, which cost us \$15,000, are the only ones that have ever reached civilization alive. These beasts weigh about 400 pounds each, or one-fourteenth as much as an ordinary hippo.

The Lion House contains in its indoor and outdoor cages, lions, tigers, leopards, jaguars, snow leopards, etc. Our largest male lion is an especially fine specimen, and is beloved of painters and sculptors, for whom he poses continually. The pair of Siberian tigers, which live in an outdoor cage throughout the year, are also very fine.

Opposite this last building is the Primates House, harboring a complete collection of apes, monkeys, baboons and lemurs. Our great ape collection is especially noteworthy, as it consists of four chimpanzees and five ourang-outangs, ani-

mals which are usually short lived in captivity, but which with us are doing very well; too well in fact, judging from the continual assault they make upon everything that is tearable, breakable and handable within their reach. Their antics always attract a crowd, and during the summer months, when daily exhibitions of their training are given, the space around the outdoor cages is too small for all those who wish to see.

The Large Bird House contains a really wonderful lot of birds—songsters, and those which one would like better without their song. Notable among these are the birds of paradise, the toucans, hornbills, a white crow, and a white blackbird, turacou, and many others too numerous to mention. All of these, except a few unruly ones, are kept in a large flying cage containing a great number of birds, carefully selected to live together without strife, happy and contented. Identification of any one kind is greatly facilitated by the picture labels, which are used on all cages containing more than one species. The labels contain beside the name, habitat, and a short statement of any interesting fact connected with the animal in question, a small oil painting of the specimens in color. This building as well as all others in which there is sufficient light and room, is well supplied with living plants, for the most



PHEASANT AVIARY, NEW YORK ZOOLOGICAL PARK.

part large palms, which add a touch of grace and color that is much appreciated.

To the west and below is the Aquatic Bird House, harboring in winter the occupants of the great Flying Cage, a large open air structure enclosing several large

come, to some extent at least, by climbing to the top of their shelter building.

The great pond for wild fowl is north of these, teeming with ducks and geese, many of them volunteers, that would be able to fly away were they so inclined, but

hours, to say, "Ah, shucks! There ain't no such animal." Here we also have the Addax, Beisa, and Sable antelope, and kudu, gnus and elands.

Below, still towards the east, lies the broad expanse of the Bison Range, containing over forty fine, healthy specimens of this species. Of this herd, we donated, a few years ago, the nucleus of the first really protected government herd, that in the Wichita Forest Preserve. This herd is doing very well indeed, and has increased materially.

Turning north, we are at the Ostrich House, where we have besides the African ostriches, some cassowaries, emeus, and rheas, and a pair of Secretary birds, which on account of their snake-eating habits, and their peculiar form, always attract a great deal of attention.

Next comes the Small Mammal House, sheltering a great variety of small felines, rodents, marsupials, and canines—remarkable among which are the panda, and the capybara (the largest of rodents).

Turning to the right, we find directly in front of us the Reptile House, the first large building erected, and which still holds, with the Monkey House, the centre of the stage. Here we find snakes from a sixteen-inch coral snake (very poisonous) to a twenty-six foot python (non-poisonous) and comparatively harmless to human beings. It is from these pythons, by the way, that the English suffragettes took pattern, I think, because they are the original hunger strikers. On several occasions these beasts, when first brought to the park, have absolutely refused to eat, though tempted with all the delicacies of the snake larder, such as chickens, rabbits, rats, cats, and dogs. When this occurs forced feeding is



MARSH GARDEN IN BIRD VALLEY, NEW YORK ZOOLOGICAL PARK.

trees and a spacious pool, which rises nearby in glorious dimensions, and in which one can see pelicans, cormorants, egrets, flamingoes, snake-birds, and many others of wondrous form and hue.

Farther west begin the Deer Ranges, starting with a fine collection of European and Asiatic Deer, such as fallow, and the red deer of Europe, axis deer, the Beau Brummel among the antlered folk; Barasingha, Malay and Indian sambar, Tashkent wapiti, and Altai wapiti, all in large ranges in which they can run and sport to their hearts' content.

Proceeding up the Bird Valley, as this glade has been named, we see the long arc of the Eagle and Vulture Aviary, with eagles, condors, hawks and vultures, and further along, the Zebra House and the Wild Horse Enclosure, where are found among others, the Prjevalsky horses from Mongolia, the progenitor of all our domestic races of the horse. Next comes the ranges of the American wapiti, of which we have a noble herd, the mule deer, llamas, alpacas, and vicunas and camels. To the east is the Pheasant and Dove Aviary, containing golden, silver, Impeyan, Reeves, English, Manchurian pheasants, and many doves and pigeons. Just south of this, two great rarities in zoological collections, the musk oxen from "Greenland's icy mountains," and the Rocky Mountain goats from our own great Rockies. Both of these animals are thriving well in spite of the high temperature and the low altitude, which latter the goats usually try to over-

who prefer to stay where milk and honey flows, and where the man that hunts gets ten days and a fine of twenty-five dollars.

Keeping on to the east we come to the house for small tropical deer, such as the Muntjack, Brocket, Marsh deer, hog deer, small antelopes, and wild swine, like the wart-hog, whose ugliness is positively fascinating, and the handsome Red river hog,



ELEPHANT HOUSE, NEW YORK ZOOLOGICAL PARK.

both from Africa, and the aggressive little peccary, of the Central American States.

Just beyond is the Antelope House, with a fine pair of giraffes, the wonderful near antelopes, with marvelous length of leg and neck, that compelled one of our visitors, who had been watching them for several

always resorted to as a last resort. Five or six rabbits, well lubricated, are tied together. A pole is stuck under the chin of the first one, then the meal is pushed down into the snake's throat very much like a load of powder into a muzzle-loading cannon. When the rabbits are down the pole

is withdrawn. Of course the snake is first straightened out, and held so during the operation, and after three or four of these feedings, with two or three-month intervals, the snake gets back its appetite, and to quite some extent, too, for one of our pythons has gotten away with a re-past of sixty-six pounds of young, freshly killed pig at one meal, but then their dinner bell rings only about once in two weeks. Then there are cobras, rattlers, anacondas, king snakes, copper heads, racers, and many more. Other noteworthy inhabitants of this building are the Galapagos tortoises, the oldest of which, weighing 225 pounds, has reached a ripe old age of 350 years. Alligators, crocodiles, gavials, lizzards and turtles are also found here.

Just beyond the Reptile House lies the rock-pool in which "Flip," our Atlantic walrus, is domiciled. This animal, for his size, is our most expensive boarder, devouring as he does fourteen pounds of shelled clams and fourteen pounds of skinned and boned fish daily.

The great series of Bear Dens is just below here. They are like all other cages, spacious and comfortable. Each enclosure is provided with rock shelter dens and a bathing pool, and the way our bears are eating, growing and, in the exuberance of their spirits, often tearing and fighting, is the best character certificate this installation could have. Of bears we have a fine lot, American and foreign, among which are the very rare spectacled bear of the Andes, shown here for the first time in America, the gigantic Peninsula and Kodiak bears, the grizzly and the Polar bear.

Of course we have not journeyed to all of our exhibits, but we have walked about five miles, and it may not now be amiss to consider what all this means from a practical point of view. That this park is not only a place of amusement, but also a great educational institution cannot be denied, for any day, classes with text-books and note pads, drawing classes, and painters and sculptors, can be seen at work, and our excellent photographic animal portraits have found their way into the publications of nearly all the world.

Fifteen millions of visitors have entered the gates since the opening day, and the annual number is increasing every year, there being last year 1,708,455. The Zoological Society has spent on the park, of its own funds to date, about \$600,000, besides all the profits derived from the sale of its publications, restaurants, refreshment stands, etc., which under the agreement must be expended for animals, and the City of New York has supplied to the Zoological Park at least \$2,000,000.

The Park contains eight miles of walks, 11 miles of fences, 36 buildings and 13 groups of dens, ranges and corralls, and has an extent of 264 acres. The regular maintenance employees number 150, and the cost of maintenance last year was \$186,000.

Of course the amount of food consumed is enormous, and a few of the items may be interesting.

FOOD SUPPLIES FOR 1912.

Timothy, clover, alfalfa hay—tons.	450
Grains—Corn, oats, wheat and barley—tons	202

Beef—pounds	130,500
Fish—pounds	44,000
Eggs	49,261
Bread—loaves	76,000
Fruits—aggregate cost	\$1,851.10
Seeds for birds—aggregate cost...	1,333.25
Peanuts—pounds	1,800
Condensed milk—cans	4,864
Potatoes—bushels	950
Carrots—tons	6½
Beets—tons	1
Cabbage—heads	5,600
Celery—bunches	1,400
Lettuce—heads	3,668
Lettuce leaves—barrels	60
Mangels—tons	25
Tomatoes—bushels	20

LIVE STOCK CONSUMED.

Mice, rats, pigeons, frogs, toads, chickens, guinea pigs, rabbits, etc.	19,446
Horses	40
Pigs	37
Straw for bedding purposes—tons.	27

The total cost of food for animals for 1912 was \$36,932.20.

If the question be asked, "Is it worth while to go to all this trouble and expense?" it assuredly would be answered in the affirmative. We who pass among the delighted visitors, day by day, and who have heard the comments of the representatives of the International Zoological Congress, some of whom had seen every worthwhile institution of this kind in the world, and the comments of park officials from other cities and countries, too, do not consider that our years of effort, study, and labor have been wasted.

ACCOUNTING FOR CEMETERIES

Address Before Buffalo Convention of Cemetery Superintendents, by A. W. Hobert.

The methods in which the accounts of a cemetery are kept depends to some extent on the constitution of the Association owning the cemetery, on the laws of the state in which it is situated and probably on other local conditions, but the general principles which apply to the keeping of cemetery books must be the same in all cases.

The accounts should be kept in such a way that at the end of each fiscal period the Association is able to present correct statements of its operations during the period and of its financial position at the close.

I propose to deal first with the statement of the financial position, second, with the statement of operations, and finally, with the books and other records which should be used as a means to the preparation of them.

FINANCIAL POSITION.

The statement of the financial position, commonly called the Balance Sheet, sets out the assets and liabilities of the Association as at the date on which the balance is struck. The excess of assets over liabilities represents the combined capital and surplus of the Association.

Dealing first with the assets, these should be divided into two main groups—fixed assets and floating assets. The fixed assets consist of lands, improvements, equipment and investments; the floating assets consist of inventories of materials and supplies used in the operation of the cemetery, cash, and accounts receivable.

Lands. The original purchase price of land acquired for cemetery purposes should be charged to this account. The area acquired should be divided into two parts—the salable area and the area required for roads and other reserved spaces. The total salable area should be applied to the total purchase price and the cost of improving for cemetery purposes and the cost per square foot ascertained. Then when a sale of a lot is made the cost thereof will be ascertained by multiplying the number of square feet in the

lot by the unit cost. This amount should be credited to the lands account and charged in the operating account, as I shall hereafter explain. If the lands account be kept in this way, the result will be that when the last lot in the cemetery is sold and the cost credited to the lands account, this asset will disappear. The Association will still own the roadways and other reserved spaces, but as these have no commercial value, they should not be represented in the Balance Sheet.

Improvements. Under this caption we carry such items as Greenhouses, Chapel, Vault, Crematorium, Fences, and Water System. A separate account should be carried for each item of that kind. The expenditure on original construction and on extensions should be charged to the asset account, but not expenditure on repairs. Provision should be made for writing off the capital value of these assets during the period of active operation. This can best be done by estimating the probable period of active operation of

the cemetery and writing off a proportional part of the asset against the operating account each year.

Equipment. Under this caption we carry such items as Horses and Wagons, and Office Furniture and Fixtures. For the purpose of the annual statement these should be inventoried and valued at their present worth. The difference between the book value and the appraised value should be transferred to the operating account.

Investments. The investments are primarily required to guarantee the fulfillment of the obligations of perpetual care.

Inventories. Coming now to the floating assets, we have first the inventories of materials and supplies used in the operation of the cemetery—burial boxes, burial devices, greenhouse supplies, etc. Purchases during the year should be charged to the asset account; at the end of the year physical inventories should be taken and a valuation made; and the difference between that valuation and the book value, representing the materials and supplies used, should be charged to the operating account.

Cash. This item consists of cash in bank and cash on hand. It is important that the records of cash be kept very carefully. All cash received, from whatever source, should be deposited in full in the bank daily. For payments of small amount in currency, a separate contingent fund should be established, to be replenished from time to time as required.

Accounts Receivable. Separate sets of accounts receivable should be kept for the various classes: Deferred Instalments on Lot Sales; Sales of Greenhouse Produce; Foundation Contracts, and so on, so that the total outstanding in each class may always be ascertainable.

These are the principal items appearing on the asset side of the Balance Sheet. The liabilities may be classified in four divisions: Capital Stock, Bonded Indebtedness, Current Liabilities and Reserves.

Capital Stock. The Cemetery Association with which I am connected is not operated for the purpose of earning profits; there are no stockholders and no capital stock. The excess of income over expenditure is thus wholly available for cemetery purposes and we are therefore relieved of that very difficult question of apportioning the surplus income between the present claims of the stockholders and the future claims of the cemetery. For the most part the rights of stockholders are regulated by the articles of incorporation and the by-laws of the company.

Bonded Indebtedness. As to the bonded indebtedness, provision must be made for repayment of the bonds in accordance with the deed of trust under which they have been issued. If they are repayable by equal instalments during their currency no special provision need be made, but if they are repayable in one amount at the

THE NECROPOLIS ASSOCIATION
Balance Sheet
As at December 31, 1912

ASSETS			
Fixed Assets:			
Lands:			
Improved Lands		\$	400,000.00
Unimproved Lands			100,000.00
			500,000.00
Improvements:			
Greenhouses	\$	20,000.00	
Chapel		50,000.00	
Vault		20,000.00	
Crematorium		10,000.00	
Fences		10,000.00	
Water System		12,000.00	122,000.00
Equipment:			
Horses and Wagons.....		3,000.00	
Furniture and Fixtures.....		2,000.00	5,000.00
Investments of Future Care Fund:			
Bonds		200,000.00	
Real Estate Mortgages		100,000.00	
Cash in Bank		1,200.00	301,200.00
Total Fixed Assets			928,200.00
Floating Assets:			
Inventories of Materials and Supplies.....		15,000.00	
Cash:			
First National Bank.....	\$	5,000.00	
Contingent Fund		1,000.00	6,000.00
Accounts Receivable:			
Deferred Instalments on Lot Sales.....		40,000.00	
For Greenhouse Produce		2,000.00	
For Foundation Contracts		500.00	
Miscellaneous		3,000.00	45,500.00
Total Floating Assets			66,500.00
Total Assets			\$994,700.00
LIABILITIES.			
Capital Stock Authorized and Issued:			
5,000 Shares of \$100.00 each.....			\$500,000.00
Bonded Indebtedness Authorized and Issued:			
200 5% Debenture Bonds of \$500.00 each.....			100,000.00
Current Liabilities:			
Accounts Payable—Audited Vouchers.....	\$	5,500.00	
Pay Roll for December, 1912.....		2,500.00	
Taxes for year 1912.....		500.00	8,500.00
Reserve for Future Care			301,200.00
Surplus			85,000.00
Total Capital and Liabilities.....			\$994,700.00

THE NECROPOLIS ASSOCIATION
Income Account
For the year ended December 31, 1912

	Rev.	Direct Expense	Net Rev.
Sales of Lots	\$ 50,000.00	\$25,000.00	\$25,000.00
Sales of Single Graves.....	10,000.00	2,500.00	7,500.00
Opening and Decorating Graves.....	15,000.00	10,000.00	5,000.00
Foundations	15,000.00	7,000.00	8,000.00
Coffin Boxes	500.00	150.00	350.00
Use of Crematorium.....	2,000.00	500.00	1,500.00
Sales of Greenhouse Produce.....	20,000.00	17,500.00	2,500.00
	\$112,500	\$62,650.00	\$49,850.00
Interest on Lot Sales Contracts.....			3,000.00
Record Fees			150.00
Discount on Purchases			100.00
Total Net Revenue			\$53,100.00
General Cemetery Expense:			
Salary of Superintendent.....	\$	4,000.00	
Maintenance of Grounds.....		12,000.00	
General Repairs		1,000.00	
General Depreciation		10,000.00	
Stable Expense		3,000.00	
		\$30,000.00	
Administration Expense:			
Salaries	\$10,000.00		
Stationery and Printing	500.00		
Telephone and Telegraph	200.00		
Postage	150.00		
Legal Expenses	500.00		
Office Rent	1,200.00		
Insurance	150.00	11,700.00	41,700.00
Net Income			\$11,400.00

end of a fixed period a proportionate amount should be set aside each year and invested so that at maturity there will be a fund available to meet them.

Current Liabilities. Current liabilities consist of accounts payable for purchases, wages, taxes, and so forth. All I need say in this connection is that before closing the books for the fiscal year great

care should be exercised in setting up all outstanding liabilities.

Reserves. We now come to the reserves and the chief among these is the reserve for perpetual care. This has been the subject of many discussions and much consideration by the members of this Association. It is obvious that it cannot be dealt with exhaustively in a paper of

this kind and I must content myself by dealing only with the general principles. The question has been asked: Is it proper to guarantee something in perpetuity? Opinions differ on this point but this, at least, is clear: No one knows what the conditions will be even a hundred years hence and that is a very small fraction of perpetuity; it is also impossible to determine a time when conditions shall have changed to such an extent that the contract cannot be carried out. It is essential, however, to undertake the obligation in perpetuity. It would be well, therefore, if all contracts for future care were limited by a qualifying clause relieving the Association in the event of circumstances arising—either as the result of legislation or otherwise—which would render impossible the carrying out of the specific obligations.

But whether the obligations be qualified or not, the present duty of the trustees is to accumulate a fund which at the current rate of interest on safe investments—it is useless to speculate what the future rate will be—will provide a sum sufficient to care for the cemetery from year to year after revenue from all other sources has ceased. That fund can only be raised by contributions from purchasers of lots. I am not going into the question of the best method of assessment, but I will say this, that the assessment, however it may be calculated, should be part of the original purchase contract and it should be a part of every purchase contract. It is, I think, unsatisfactory to sell one lot with a contract for future care and another and a neighboring lot without such a contract. The amenity of the cemetery can best be preserved by caring for it as a whole. This would not of course preclude special care being given to a lot either under an annual contract or under a perpetual future contract.

The accounting required for the future care fund is not difficult. The assessment for future care must be made in one of two ways—either so much per square foot on the area sold or so much per dollar on the purchase price. The difficulty of course is in fixing the "so much" but that is a matter which must be determined separately by each cemetery company according to the conditions under which it operates; and in any case it is beyond the scope of this paper. When a lot is sold the proportion of the purchase price representing the assessment for future care should be ascertained and an entry made charging "Cost of Lot Sales" and crediting "Reserve for Future Care." At regular intervals during the year there should be transferred from the ordinary bank account to a special "Investment" bank account or to the trustees of the fund the exact amount of the assessments to the date of transfer. Where the fund is not paid to trustees, it is convenient to keep

a separate "Investment" bank account, as there will generally be small uninvested balances and these should be kept apart from the general funds of the company. At the close of the year the Investment of the Future Care Fund appearing as an asset, and consisting of Bonds, Mortgages and Other Securities and the balance in the Investment bank account, should equal the Reserve for Future Care appearing on the liability side.

There is a question as to how interest on these investments should be treated during the period of active operation of the cemetery—whether as part of the current income or as an addition to the reserve. It is a factor which must be taken into account in fixing the rate of the assessment. If the interest is to be added to the Investment fund, the interest coupons when received should be deposited in the Investment bank account and the amount credited to the Reserve for Future Care. If on the other hand the interest is to be treated as revenue, then the coupons will be deposited in the general bank account and the amount credited to operations.

OPERATIONS.

The main sources of revenue are Sales of Lots, Opening and Decorating Graves, Foundations, Coffin Boxes, Sales of Greenhouse Produce. The direct expense applicable to these various sources of revenue should be recorded in separate accounts so that the net revenue from each may be ascertained. For instance, the expenses to be charged against the sale of lots will be (1) the prime cost of the land sold and (2) the assessment for future care. The expense of opening and decorating graves would be (1) labor and (2) material. And so on. The difference between the revenue from these sources and the direct expenses is called "Net Revenue from Operations." There may be revenue from sundry other sources, such as interest on lot sales contracts, record fees, discounts on purchases of materials, and so on. These should be added to the net revenue from operations to obtain the total amount of revenue against which the indirect or general cemetery expenses and the administration expenses should be charged. The general cemetery expenses consist of such items as Salary of Superintendent, Maintenance of Grounds, General Repairs and Depreciation and Stable Expense. The Administration Expenses consist of such items as Salaries, Stationery and Printing, Telephone and Telegraph, Postage, Legal Expenses, Office Rent, and Insurance. When the expenses of these two classes have been charged against the total revenue, the net income for the year is obtained.

At the end of each year the net income should be transferred to the surplus account. If the Company be carried on for

profit, any dividend paid should be charged against the surplus and the balance of surplus carried forward to the following year. If the Company be not carried on for profit and if adequate provision is being made for future care and for writing off the fixed property assets there is no necessity to accumulate a surplus, but as it is impossible to figure so closely that the expenses will always equal the revenue, it is necessary to have a surplus account to which the yearly balance on the Income Account should be transferred.

As an appendix to this paper I am submitting forms of Balance Sheet and Income Account framed in accordance with the foregoing suggestions. I have filled in figures to make the forms more easily understandable, but I wish to make it clear that the figures are purely imaginary.

BOOKS AND OTHER RECORDS. CITY OFFICE.

In the case of cemeteries there are generally two offices: one in the city and one at the cemetery. I shall deal first with the books kept in the city office. There are four principal books of account: Ledger, Cash Book, Journal or Day Book, and Voucher Record.

Ledger. The general ledger contains in a summarized form a record of all the assets and liabilities and of all the operations of the Company. The accounts should be entered as nearly as possible in the order in which they appear in the Balance Sheet and Income Account—(1) assets, (2) liabilities, (3) revenue accounts and (4) expense accounts. If the accounts are carried in this order the trial balance of the ledger is more readily understandable than if the accounts are entered without regard to their logical sequence. Subsidiary ledgers, in loose leaf or card form, should be used to carry the various classes of accounts receivable, each subsidiary ledger being governed by a controlling account in the general ledger.

Cash Book. On the debit side of the cash book there should be a column showing each item of cash received and distribution columns—one for each class of accounts receivable and a column for general ledger items. As all cash received is deposited in bank the "cash received" column acts also as a bank deposit column. The items in the accounts receivable columns are posted in total at the end of each month to the appropriate controlling accounts in the general ledger and in detail to the subsidiary ledgers. The items in the general ledger column are posted in detail to the general ledger. On the credit side of the cash book there are three columns, one for checks drawn and two distribution columns—one for audited vouchers paid and one for miscellaneous items, if any, not paid on an audited voucher. It is advisable, however, that there should be an audited voucher for every payment

through the bank and, if such a rule can be rigidly adhered to, a third column is unnecessary. The audited vouchers column is posted in total and the miscellaneous column in detail.

Journal or Day Book. This book is used to record sales. On the debit side there are columns for each class of accounts receivable and a general ledger column, and on the credit side a separate column for each class of revenue, as shown in the income account, and a general ledger column. The information for the entries in this book will generally come on reports from the cemetery. As an example of the entries, I shall take the case of a lot sale. The bargain is generally made at the cemetery. When a sale is made a form is made out in triplicate—one for the purchaser, one for the city office, and one to be retained at the cemetery—setting out the name and address of the purchaser, the description and area of the lot, the price agreed on, and the terms of payment. When this slip is received at the city office an entry is made charging the purchaser in the appropriate accounts receivable column and crediting revenue in the lot sales column. Similarly in the case of foundations, an order on the superintendent is made out by the contractor and signed by the lot owner, specifying the work required. The price per foot and the total cost are figured by the superintendent. From this order another blank is made out, in duplicate, containing a specification of the work required. One copy of this is sent to the workman who is to carry out the work and the duplicate is retained in the cemetery office. The original order is then sent to the city office and an entry is made charging the lot owner in the appropriate accounts receivable column and crediting revenue in the "Foundations" column.

At the end of each month postings are made to the ledgers. The accounts receivable columns are posted in total to the appropriate controlling accounts in the general ledger and in detail to the subsidiary ledgers; columns on the credit side are posted in total to the appropriate revenue accounts in the general ledger and the general ledger columns are posted in detail. The two general ledger columns in the day book—debit and credit—may be conveniently used for miscellaneous journal entries such as those required for closing the books at the end of the year.

Voucher Record. This book is used for the record and classification of disbursements made on audited vouchers. The voucher which we use at Lakewood is a combination check and voucher, although it differs from some other check vouchers in this respect, that only the check goes through the bank. This check voucher is in three parts, divided by perforations: One part, being the voucher proper, is retained in the office; the two parts which

are sent to the payee consist of (1) a statement of the account and a declaration that the accompanying check is in full settlement of it, and (2) the check in payment. The payee detaches the check for deposit in bank and retains the memorandum. The same serial number is on each of the three parts, so that after they have been separated, reference from one to the other is easy. The part of the check voucher retained in the office should have provision for the signature of the bookkeeper, the superintendent and the auditing committee, and also for the distribution of the amount of the voucher among the appropriate ledger accounts.

The voucher record should contain, on one side, columns for the date, number and amount of the voucher, a column for the date of issue, and a space for the name of the payee. On the other side there should be separate columns for each of the direct expense accounts, one column for the general cemetery expense, one column for the administration expense and a general ledger column. When vouchers are issued to the payee they are entered in the cash book and a note of the date of issue made in the voucher record. The total of the open items in the voucher record should always agree with the balance of the controlling account on the general ledger. At the end of the month the total of the audited vouchers column will be posted to the credit of the audited vouchers account in the general ledger. The totals of each of the expense columns will be posted to the debit of the appropriate expense account in the general ledger and the general ledger column in detail. To obtain a more detailed classification of the expenses a subsidiary expense ledger should be carried. Separate accounts should be opened, grouped under the general classification in the voucher record, and the entries may be posted to these separate accounts either from the voucher record or from the voucher itself. This subsidiary ledger would be governed by controlling accounts in the general ledger.

The records which I have described do not differ in any marked degree from the records of any other commercial enterprise. The records at the cemetery may be described as the technical records, and I now come to a description of them.

CEMETERY OFFICE.

A day book is also kept at the cemetery. It is the book of original entry for all matters relating to burials, etc. When an interment is to take place the following record is made:

1. Time of interment.
2. Undertaker's name.
3. Name of decedent.
4. Number of burial order.
5. Location of lot.

There are also entered in this book the daily cash and charge transactions. At the end of each day these transactions are

analyzed according to the classification of revenue and entered on a special report form on which the various items of cash received are set out. This report, together with the duplicate sales slips and the cash receipts, is sent to the city office each day. From this report the day book in the city office is written up.

The receipts being forwarded to the city office and deposited in bank, the superintendent must have a contingent fund for petty disbursements. The contingent fund is of a fixed amount, \$200 or \$500, or whatever sum the circumstances may require. A simple cash book should be kept to record the disbursements. When the fund is nearing exhaustion, and also at the end of each month, the disbursements should be transcribed on a separate report and forwarded to the city office. At the city office the disbursements will be analyzed according to the classification of expenses and a voucher for the total amount will then be made out to the superintendent and the contingent fund will thereby be restored to the original amount.

Labor. The workmen's time books should be analyzed each day by the cemetery foreman and O. K'd by the timekeeper. This analysis, which should be according to the classification of expenses, should be carried to a daily summary showing the number of hours and the rate per hour spent on the different kinds of work. At the end of the month the daily summaries are carried to a monthly summary and the time is worked out at the proper rate per hour; the total of this summary should agree with the total of the pay-roll for the month. The pay-roll should contain for each workman the name, occupation, number of hours, rate and amount. The pay-roll, signed by the superintendent as correct, should be sent to the city office along with a copy of the monthly summary. From these a voucher is made out in favor of the superintendent. The proper distribution of the pay-roll for the voucher record is obtained from the monthly summary. The pay-roll voucher is cashed by the superintendent and the wages may be paid either in currency or by check, whichever is the more convenient in the locality. If the wages are to be paid by check, the superintendent should deposit the pay-roll voucher in a special bank account and draw the individual pay checks thereon.

In the case of an employee leaving before the end of the month he may be paid in currency out of the contingent fund. A separate time check should be used for payments of that kind.

For sales of lots a sale book is kept, ruled to show the entire lots in the cemetery, the selling price per lot, number of lot, and map of each section of lots. When a sale takes place, an entry is made showing the name of the purchaser of the lot. A reference to this book will thus always show which lots have been sold and

which remain unsold. I have always referred to the slip which is made out in triplicate at the time of the sale, showing the name of purchaser, description of lot, price, and terms of payment. One copy of this slip is given to the purchaser, one is sent to the city office, and the third is retained at the cemetery. Particulars of the sale of the lot are then entered in the "Lot Owners' Index." This book is a memorandum to facilitate reference to the "Address Book." The address book contains a record of all the lots set out in serial order. Opposite the number of the lot sold there are entered, (1) name of purchaser, (2) address, (3) date of sale (4) price, and (5) area in square feet. At the same time a card is made out showing particulars of the sale of the lot, exactly as in the address book, and containing a plan of the lot and provision for a record of the interments.

Burials. The order for the burial is generally communicated to the cemetery by the undertaker when it is entered in the

day book under the date of the burial. Before the burial order can be made out a permission for burial must be obtained, signed by the lot owner. The grave is prepared for opening by the burial foreman, who returns the burial order to the office, and the superintendent or one of his assistants in the office checks by physical examination the location and the measurements as shown in the order. The particulars of the interment are entered in the Daily Interment Record, the information being as follows: (1) Name of decedent; (2) Date of death; (3) Date of interment; (4) Age; (5) Sex; (6) Social state; (7) Nativity; (8) Place of death; (9) Cause of death; (10) Place of interment; (11) Name of undertaker. A card is then made out containing a record of the interment and this is filed alphabetically under the name of the deceased.

Foundations. I have already described the procedure in connection with foundations when dealing with the city office day book.

Watering. In the spring of the year a standing order for watering and a yearly order are mailed to those lot owners who have not previously given an order for watering. When these cards are returned the appropriate entry is made in the watering book kept by the watering foreman. The cards are filed in the order of lots and sections and information for the yearly charge is obtained from this file.

Other forms which should be kept at the cemetery are: Order for floral decorations, order for greenhouse produce, order for vase, order for cremation.

A daily report of all transactions taking place at the cemetery must be sent to the city office, along with duplicates of the sales and order slips and the cash received. All bills should be directed to be paid at the city office, but if cash is tendered at the cemetery in settlement of a bill rendered it should, of course, be accepted and a simple receipt given, together with a notification that a formal receipt will be mailed from the city office.

LOG DRAGS FOR SURFACING DIRT ROADS

This is the time of year, according to road experts of the Department of Agriculture, when the earth road should be prepared for the winter. The use of the split-log drag is important in putting the roads in shape for winter use.

There are over 2,000,000 miles of dirt roads in the country, and the split-log drag is of great service in keeping them in economical repair. The drag is used in many states and in foreign countries. It is used with two, three, or four horses, and is easily constructed.

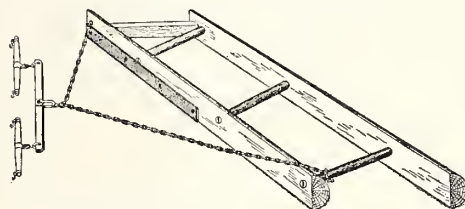
The two-slab log and plank drags have proven the most satisfactory. Double drags for working both sides of the roadway simultaneously have been tried with only limited success. The reason for this is that both sides of an earth road are never exactly alike. This causes the two parts of the drag to work unevenly and to interfere with each other.

It is a mistake to construct a heavy drag. A dry red cedar log is the best material for a drag. Red elm and walnut when thoroughly dried are excellent, and box elder, soft maple, or even willow are preferable to oak, hickory or ash.

The log should be seven or eight feet long and from 10 to 12 inches in diameter and carefully split down the middle. The heaviest and best slabs should be selected for the front. At a point on the front slab four inches from the end that is to be at the middle of the road locate the center of the hole to receive a cross stake, and 22 inches from the other end of the front slab locate the center for another cross stake. The hole for the middle stake will lie on a line connecting and halfway between the other two.

The back slab should then be placed in a position behind the other. From the

end at the middle of the road measure 20 inches for the center of the cross stake, and six inches from the other end locate the center of the outside stake. Find the center of the middle hole as before. When these holes are brought opposite each other, one end of the back slab will lie 16 inches nearer the center of the roadway than the



THE SPLIT LOG DRAG

front one. The holes should be two inches in diameter. Care must be taken to hold the auger plumb in boring these holes in order that the stakes shall fit properly.

The two slabs should be held 30 inches apart by the stakes. The stakes should taper gradually toward the ends. There should be no shoulder at the point where the stakes enter the slab. The stakes should be fastened in place by wedges only. When the stakes have been placed in position and tightly wedged, a brace two inches thick and four inches wide should be placed diagonally to them at the ditch end. The brace should be dropped on the front slab, so that its lower edge shall lie within an inch of the ground, while the other end should rest in the angle between the slab and the end stake.

A strip of iron about $3\frac{1}{2}$ feet long, 3 or 4 inches wide, and $\frac{1}{4}$ of an inch thick may be used for the blade. This should be attached to the front slab, so that it will be one-half inch below the lower edge of the slab at the ditch end, while the end of the iron toward the middle of the

road should be flush with the edge of the slab. The bolts holding the blade in place should have flat heads and the holes to receive them should be countersunk.

An ordinary trace chain is strong enough to draw the implement, provided the clevis is not fastened through a link. The chain should be wrapped around the rear stake, then passed over the front slab. Raising the chain at this end of the slab allows the earth to drift past the face of the drag. The other end of the chain should be passed through the hole in the end of the slab. One and one-half trace chains are sufficient.

The snatch link or clevis should be fastened far enough toward the blade end of the chain to force the unloaded drag to follow the team at an angle of 45 degrees. This will cause the earth to move along the face of the drag smoothly and will give comparatively light draft to the team, provided the driver rides in the line of draft.

If small weeds are to be cut or a furrow of earth is to be moved, the double-tree should be attached rather close to the ditch end of the drag. The drag will now move nearly ditch end foremost, and the driver should stand with one foot on the extreme forward end of the front slab. This will swing the drag back to the proper angle and will cause the blade to plow. This hitch requires slow and careful driving in order to prevent the drag from tipping forward. If the blade should plow too deeply, the driver should shift his weight toward the back slab. If straw and weeds clog the blade, they can usually be removed if the driver shifts his weight to a point as far as possible from the ditch or blade end.

ASKED AND ANSWERED

An exchange of experience on practical matters by our readers. You are invited to contribute questions and answers to this department

Interior Construction of Mausoleums.

Editor Asked and Answered Department: "Are the usual wood coffins or caskets permitted to be placed into the crypt of a mausoleum, or is it compulsory that the casket must be concealed in a metallic vault?"

How much larger than the casket are the stone crypts made?

Is free ventilation or air circulation through the inside of the stone crypt necessary?

Are openings at the bottom of the stone crypts necessary for drainage? If so, should the drain be through the floor of the mausoleum into the ground or should crypts be air-tight and air circulation only to the inside of mausoleum? Is there any definite standard regarding the thickness of stone walls and stone roofs of a mausoleum?"—A. B. N.

When the usual wood coffins are placed in the crypts of a mausoleum they should be enclosed in a copper or zinc outside box. We do not know that this is demanded by all cemeteries, but it is by many of the leading ones. The crypts should be at least an inch larger in all dimensions than the outside of the outside box, and if the crypts were still larger it would be better. We do not believe in ventilating the crypts at all, although some cemetery authorities suggest it. We think it is better to have the crypt absolutely air tight. We do not think it is necessary to drain the crypts if they are properly made, although this is also called for in the rules of some cemeteries. We think it is necessary to have a space between the backs of the crypts and the outside granite wall of the building, and also in the interior of the building, connecting with air vents under the roof stones to provide for a proper circulation of air in the interior of the building in order to keep it as dry as possible. We do not know of any standard rules for the thickness of the walls or roof stones of mausoleums, but we think the outside walls and the roof stones should be at least ten inches thick or more, depending on the size, style and construction of the building.

C. E. TAYNTOR GRANITE CO.

New York City.

* * *

The following answers to your correspondent's questions concerning mausoleum construction are in conformity with our requirements here:

1. Only hermetically sealed caskets or metal lined boxes are permitted in mausoleum crypts.

2. Crypts should not be less than 7 feet 6 inches long, 2 feet 8 inches wide, and 2 feet 2 inches high; a few inches larger all around is better.

3. We recommend and insist on top and bottom openings in each crypt for circulation of air to connect with air space behind the crypt construction. We prefer the crypt construction in slate or stone, though concrete is not prohibited. If slate or stone are used the joints are not cemented, thus also furnishing opportunity for circulation of air.

4. We do not advocate any provisions for crypt drainage. If proper precautions are taken with caskets and boxes there will be no necessity for drainage. However, we do have the shelves set with a slight incline toward the rear, so that any possible moisture must run toward and drip into the air space.

5. As to any standard regarding thickness of walls and roof stones, there is none. It might be said that the minimum thickness of the former should be 10 inches and of the latter 12 inches. These things depend on design, size, material and construction.

FRANK EURICH,

Supt., Woodlawn Cemetery.

Detroit, Mich.

* * *

In considering the queries of your correspondent, so many other equally vital questions relating to these mortuary buildings occur to one's mind that I am sorely tempted to enter into a discussion of the whole subject principally with a view to contributing, if possible, in some small measure to the universal protest against mausoleums, raised, it is safe to say, by the management of every cemetery throughout the land where even one of these structures has been erected. Possibly your correspondent is one who deplores the sentiment favoring this method of burial, a sentiment apparently more prevalent among the rich and therefore perhaps more of a fad than an expression of honest conviction. He, in common with the most of your readers, is probably well aware of all the evils and serious objections incident to the erection of these buildings in our cemeteries. Recognizing the fact that so long as there is any insistent demand on the part of lot owners for permission to erect mausoleums, this demand must, in some instances at least, be acceded to in most cemeteries, he is for the present more particularly interested in knowing how these buildings should be properly constructed to answer all requirements from an artistic, substantial, permanent and hygienic standpoint. I shall, therefore, endeavor to confine myself to direct answers to his questions so far as my limited experience will enable me.

It has been and is still somewhat a prevalent practice to place bodies in crypts of mausoleums and vaults encased only in wooden caskets. The use of metallic her-

metically sealed caskets is the exception, whereas it should be an invariable rule in every cemetery that all bodies to be permanently immured in vaults or mausoleums should be hermetically sealed in some practically imperishable form of receptacle. Crypts should also be hermetically sealed when occupied and should be constructed as nearly air tight as possible. Ventilation of crypts should not only be unnecessary, but is dangerous. For the same reasons drainage of crypts is unnecessary and not advisable. I am not losing sight of the fact that human remains are subject to the inexorable laws of nature and must submit to dissolution and ultimately be resolved into the native elements constituting the structure of the body, principal among which, and in a large percentage, is water, but as dissolution is slow in hermetically sealed receptacles and especially in embalmed bodies, and since experience has shown that evaporation or absorption is always present in some degree, although slow, yet sufficient to dispose of all fluids and gases, the need of vents or drainage apparatus is unnecessary. On the other hand, in the case of bodies not in hermetically sealed caskets or in imperfectly sealed receptacles, it is still unwise and dangerous to have the crypt ventilated or drained, permitting the escape of gases or fluids in varying but perhaps in perceptible and deleterious quantities. Better far to confine them in a safe degree to each crypt occupied. It is usual in the construction of crypts where ventilation is provided to make an opening in each crypt directly into the air space separating the stack of crypts from the exterior walls of the building; consequently there may be a free circulation of air communicated by this air space through all the crypts in the structure. In the event of an escape of foul air from any one crypt, even if the door is properly sealed, such air is more than apt to find its way into the interior of the building through any or all of the unsealed doors of the crypts; therefore, if ventilation is provided, each crypt should have a separate conduit. Where that should lead to is the next question. If it is necessary to provide for the escape of gases or fluids of any perceptible or dangerous quantity, it would appear that some provision should be adopted to destroy or properly dissipate them so as to render them harmless. Here the promotor of the so-called community mausoleum will offer his services and come to the rescue with his patented and elaborate disinfecting and purifying device, guaranteed by him to meet all requirements, but doubtful in its results in the minds of almost all practical and experienced persons. Fortunately, a more practicable and simple remedy has been found, namely, the hermetically sealed, unventilated crypts. If anyone is skeptical about drainage, let him provide a small bronze tube from each crypt leading di-

rectly into the ground and let the floor of the crypt dip towards the mouth of the tube, which for obvious reasons should be at the back of the crypt. But just see what a bother and expense all this would be, and to no purpose, especially if the bodies are enclosed in practically imperishable caskets.

Relative to your correspondent's inquiry regarding the ventilation of the interior of the mausoleums, I would refer you to the proceedings of the annual convention of the A. A. C. S. held in Milwaukee last year, which may be obtained from Secretary Lawson. Let me advise him to provide very little or no ventilation for the interior of mausoleums, relying rather on an occasional opening of the door in favorable weather to change the atmosphere of the interior when necessary. Free ventilation is always productive of more or less condensation in certain conditions of the atmosphere, varying according to locality. It is very objectionable and in sections where severe frost prevails is very destructive to mausoleums or similar unheated buildings. For the same reason the air spaces separating exterior walls should not be ventilated, but should be made what is technically termed dead air spaces. In this way atmospheric changes, if communicated at all to interior spaces, are so modified as to be comparatively harmless. Condensation in such structures, I can positively assert, can never be remedied by liberal ventilation. Means for free circulation only aggravate the trouble.

Crypts need not be more than two or three inches larger than the caskets planned for, but as caskets are made in many sizes it is customary to construct crypts in private mausoleums uniform in size and large enough to accommodate the largest sized casket likely to be used. It is advisable to be on the safe side, and I would suggest that crypts be no less than 7 feet 3 inches long, 2 feet 6 inches wide and 2 feet 2 inches high, but if space would permit, 8 feet long, 2 feet 8 inches wide and 2 feet 4 inches high would be better. In many cemeteries receiving vaults for temporary use are provided with crypts of two or three sizes to economize space.

As to the thickness of walls and roofs of mausoleums, there is no standard. Designers are governed by the size and style of building under consideration and generally provide amply for strength, stability and permanency. It is now generally conceded that in the superstructure of such buildings granite only shall be used and in as large sizes as conditions will permit, one important object being to minimize the number of joints. Granite in itself is very durable, but a structure of this kind is usually strong or weak, permanent or of short duration, according to the sizes of stones and number of joints in its construction, together with subsequent care,

for let this all-important fact, which I particularly desire to emphasize, be always borne in mind, that however well a building of this kind may be constructed, constant vigilance must be exercised to keep all joints carefully pointed, otherwise disintegration will soon begin and progress, as often happens, with amazing rapidity.

JAMES CURRIE,

Supt., Forest Home Cemetery.
Milwaukee, Wis.

* * *

Water Supply Outfits.

Editor Asked and Answered: "Can you give me the names of several firms that build water supply outfits for cemeteries, including windmills, tanks and towers for water works systems?"—B. F. L.

Water supply outfits are furnished by Fairbanks, Morse & Co., Chicago; W. E. Caldwell Co., Louisville, Ky., and Kewanee Water Supply Co., Kewanee, Ill.

To Inquirers About Community Mausoleums.

Editor Asked and Answered: "An agent who represents he has this state as his territory proposes to construct a mausoleum in our city cemetery containing from 100 to 200 crypts, to sell at \$125 to \$175 a crypt. Our town would probably need one of 200 capacity. He wishes land donated on which to build; he will allow the city use of chapel and receiving vault. All this is new to me, except as it comes in picture books. Can you give me some information as to the desirability of this scheme? We have abundant room for 100 years to come, and more grounds where these came from. Are there any features that make this form of burial undesirable? How do these figures look as to expense for crypts?"—_____, Mayor of _____.

"I understand there has been a great deal of criticism of people who are engaged in pushing the so-called community mausoleum. Can you give me some definite information or refer me to sources of such on this subject? Can you refer me to officials in some of the communities in which it has been tried and either found satisfactory or otherwise?"—A. F., N. Y.

"As we are looking into the matter of a community mausoleum, we would esteem it a favor if you would kindly advise in regard to this kind of mausoleum and the perpetual care of the same. We would ask you to write frankly in regard to this proposition, and if you have any literature on the subject kindly forward, together with bill for same. The mausoleum company is taking this up with us, and any information you may care to give us in regard to this company and its operations will be treated as strictly confidential. It is our desire to inform ourselves fully, and we thank you in advance for your courtesy in the matter."—_____, Sec., Cem. Assn., Mass.

"We would be pleased to have some in-

formation on the building of municipal mausoleums. There is a company of gentlemen in this section of the state who solicit stock for the building of these mausoleums. They are built under the _____ patent; all the seepage goes to the basement into a tank and is treated to acid; all the gas goes to the roof into a tank of formaldehyde before it escapes. What do you know about vaults of this kind, and are they any advantage to a cemetery donating the ground to build them? Any information that you can give will be highly appreciated."—C. H., Sec., Cem. Assn., Pa.

We have so many inquiries of this nature that we print the above as examples of the lack of information on this subject, and have formulated a general answer that will cover all the information we are able to give our readers on this subject.

If you have read all the matter that has been printed in PARK AND CEMETERY in recent months, you have all of the information we are able to give you. The four pages that appeared in our May issue represent fairly our opinion on this subject and our suggestions as to the questions that ought to be put up to the promoters of these structures.

In the October issue of PARK AND CEMETERY is the report of the Committee on Community Mausoleums of the Association of American Cemetery Superintendents. This we believe to be the most carefully considered discussion of this subject that has yet appeared, and we should advise you to read it carefully and require any mausoleum people with whom you do business to meet absolutely the specifications laid down by this committee.

The great majority of these structures that have been built have been very poorly constructed and have become eyesores to their respective communities. Cemeteries will therefore do well to insist absolutely on having an endowment fund of half the cost of the building, as is recommended in the report of this committee. Inquirers would do well to correspond with Mr. Edward G. Carter, superintendent of Oak Woods Cemetery, Chicago, chairman of the committee that made the above report, with W. N. Rudd, president of Mt. Greenwood Cemetery, Chicago, another member of that committee, and with Carl Price, Kenton, Ohio, who is chairman of the National Retail Monument Dealers' Association Committee on Community Mausoleums and has collected much literature and investigated many of these structures himself.

Nobody knows whether these community mausoleums are going to last or not. Most of them that have been built are already beginning to be very badly in need of repairs. If you are going to build one, you should see that the construction is perfect and that it is sufficiently endowed to keep it in repairs and to rebuild it in the course of forty or fifty years.

It is usually figured that about 25 per cent of the price of a lot is necessary for the perpetual care of graves and much more than this amount would be necessary for the perpetual care of a mausoleum. Ask your promoters if they are willing to set aside 50 per cent of the cost of the structure as an endowment fund. The main considerations are to secure perfect construction and sufficient endowment to properly support and care for the structure and probably ultimately to make extensive repairs or rebuild it.

A cemetery that thinks there is need for a mausoleum should build one itself, and own it and control it absolutely. You can get a private mausoleum builder to build a mausoleum in the same way that good private mausoleums are built, which are

much better constructed than anything in the way of a public mausoleum that would be put up by any of the promoting companies. The building should be heated, maintained in perfect condition, and the construction subject to the examination of a disinterested expert.

The only demand for this form of interment that is evident is that stirred up by the promoters for their own revenue. In many cases where vigorous advertising of the weaknesses of the mausoleum proposition has been done, the project has failed. Those who oppose and want to fight the proposition can best do it by advertising in their community the arguments that have appeared in these pages from time to time.

various honors from the Royal Horticultural Society of England, is in charge of the courses in morphology, anatomy, physiology, plant pathology, soils and practical horticulture. Miss Laura Dawson, a graduate of Radcliffe and a daughter of Jackson Dawson, of the Arnold Arboretum, is in charge of the course devoted to the practical study of trees and shrubs and flowering plants.

During the summer the main building (Mrs. Low's home) and the annex have both received many needed improvements. Up-to-date lighting and drafting facilities have been provided, and the garden and various greenhouses put in excellent condition, offering complete facilities for practical work for the students.

The fall term opened with about fifteen students. Many of the former graduates are doing good work in such places as New York City, Philadelphia, Providence, Cleveland, and one is in charge of the school garden work at Los Angeles.

Any interested are requested to communicate with the new principal, Miss Georgianna J. Sanders, at Lowthorpe, or visit the school in its charming setting at Groton, Mass., and see for themselves just what is being done.

BRITISH CEMETERY ASSOCIATION FORMED.

Cemetery officials of Great Britain held a well-attended meeting at the Town Hall, Kensington, London, October 17, and organized "The United Kingdom Association of Cemetery Superintendents."

The following officers were elected:

President—J. D. Robertson, City of London.

Vice-President—A. King, Islington.

Secretary-Treasurer—C. F. Tate, Kensington Cemetery, Hanwell, London, W.

It was voted to make the annual dues five shillings. The following committee was appointed to draft rules and by-laws: T. Bevan, St. Marleybone; E. Cowell, Crystal Palace; A. Casselton, Fulham; W. C. Hards, Greenwich; W. G. Hill, Barnes; W. Ismay, Plumstead; F. J. P. Loud, Acton; G. W. Snow, Wandsworth.

MASSIVE CEMETERY ENTRANCE OF GRANITE.

The Ripon Cemetery Association, Ripon, Wis., has recently erected at Hillside Cemetery a massive entrance of red granite that makes an unusual and impressive form of entrance. The plan of the structure includes a wall about four feet high with a recessed center curving toward the drive gates. Eight massive posts form the corners of the wall, and the gates for pedestrians are set at right angles to the main gate, thus securing the maximum width for the front wall.

The central gate posts are 9 feet high and 2 feet 6 inches square; the inside posts of the walk gates 8 feet high and 2 feet 2 inches at the base, and the others

5 feet 6 inches high by 2 feet 2 inches at the base. A polished name stone on either side adds something of decoration to the front wall, which extends 52 feet from post to post. The drive-gate is 12 feet wide.

The entrance was designed by George Goodell, president and superintendent of the Ripon Cemetery Association, and was erected by Knopf & Preston, of Berlin, Wis. The granite is "Wisconsin Mahogany," from the Lohrville quarries of the American Granite Co., of Milwaukee. The drive and walk gates were furnished by the Enterprise Foundry and Fence Co., of Indianapolis. The total cost of the entrance and grading was \$2,300.

WOMEN'S SCHOOL OF LANDSCAPE ARCHITECTURE.

The Lowthorpe School of Landscape Architecture and Horticulture for Women at Groton, Mass., has recently issued an illustrated descriptive book telling of the work of this interesting school. While not large and greatly in need of endowment, Lowthorpe School is doing a good work for women. Its management and teaching staff have been thoroughly reorganized and improved during the past summer. Miss Georgianna J. Sanders, a very capable

Englishwoman, thoroughly trained at Swanley, Lowthorpe and elsewhere, has been appointed principal. The important courses in landscape design are given by Bremer L. Pond, of Olmsted Bros., a Harvard graduate and master of landscape architecture, and Miss Elizabeth Leonard, one of the ablest graduates of the Department of Landscape Architecture at Cornell University. Miss Elsie D. Varley, also a graduate of Swanley, and holder of



NEW GRANITE ENTRANCE AT HILLSIDE CEMETERY, RIPON, WIS.

GREATEST AMERICAN IDEAL FOUNTAIN MEMORIAL

In "The Fountain of the Lakes," unveiled September 9, Chicago has what is generally regarded as the greatest public work of ideal sculpture in this country, and

theme it is unsurpassed in American sculpture, and will rank in our art history with such works as Mr. French's "Death and the Sculptor," and Saint-Gaudens' wonder-

be conceived. It is one of those great, elemental ideas, a powerful monumental thought, clearly conceived and beautifully executed. It is a symbolic expression of



THE SPIRIT OF THE GREAT LAKES; UNVEILED IN CHICAGO, SEPTEMBER 9.
Lorado Taft, Sc.

one of the most expressive and beautiful sculptured groups in any country. For imaginative feeling, refined, and direct expression of a great, simple monumental

ful Adams memorial in Washington.

It memorializes in a beautiful monumental group the Spirit of the Great Lakes, and a more inspiring theme could scarcely

the power and beauty of the Great Lakes, a monument to Nature in one of her most wonderful aspects, and so broadly and vividly expressed as to appeal to the imagina-

tion of the most casual observer by the sheer beauty of form and line and hold his interest by the rarely poetic interpretation of an idea.

In "The Spirit of the Lakes" Mr. Taft offers a great national symbol. Lakes Superior, Michigan, Huron, Erie and Ontario are artistically represented by five beautiful female figures, built upon a massive base at relative elevations, with a background of a monumental tablet rising half way behind the bronze group. A stream of clear water rising in the basin held by Superior overflows and falls into the shell Huron holds ready, then passes on through shells held by Michigan and Erie to Ontario, standing below, who surrenders her pleasant guardianship over the unpolluted waters of the greatest fresh-water lakes in the world to the rough keeping of the turbulent St. Lawrence.

The group represents an expenditure of several years of work by the sculptor and \$65,000 from the \$1,000,000 fund left by the late B. F. Ferguson several years ago for

the erection of public works of art in Chicago.

The five heroic-sized bronze figures make one of the largest bronze groups in this country, and the casting and setting of the group required careful and exacting execution. The bronze was cast and placed in position by the American Art Bronze Foundry Co. of Chicago.

The massive slab behind the group and the wings below are of Milford pink granite, and the fountain basin of concrete, matching the tone of the granite in color.

The work is placed in the wall on the terrace at the south end of the Art Institute, where the building forms a general background to the view.

Each figure in the group is ten feet high and the whole group, including the bronze base representing rock-work, is 22 feet 4 inches in height. This base is 14 feet across the front and 6 feet deep.

Shepley, Rutan & Coolidge are the architects associated in the designing of the pedestal.

PLAN FOR FIFTY-ACRE COLLEGE GROUNDS.

The accompanying illustration shows the proposed plan, by Richard Iwersen, Park Superintendent of Calgary, Alberta, of the new Mount Royal College grounds, which include about 50 acres of land. Part of the grounds is situated on the top of the hill, while the greater portion slopes gently down, southward, towards the Bow River flat. The main building is located on the crest of the hill, 140 feet above the south entrance of the property, commanding a beautiful view over the Bow River Valley and the Rocky Mountains.

The grounds north of the main building, which are practically flat and level, except for one little mound in the northwest corner, will be laid out for "campus"; here the base and football field, with running track around it, and the tennis courts will be located.

From the pavilion, situated on the mound just mentioned, which is the highest spot on the grounds, one enjoys a splendid view of the grand panorama.

The main drive (marked 1 and 2), leading up to the hilltop, also the driveways 3 and 4, have practically been formed by nature, therefore the designer had to take advantage of this and drew his plan accordingly. Only a little grading work will

now be necessary to perfect these roads. With the help of the water, which is expected there to be plentiful, Mr. Iwersen plans to construct a cascade, from in front of the main building, running down the slope 600 feet. Half way down a fountain will spout up high the water which, dropping into a fountain basin, continues its run down the cascade until it finishes its course in another fountain and basin.

An archway, through the main building, leads to the College Chapel, which is situated directly north of same.

Other smaller college buildings and dwellings for the teaching staff will be scattered southeast and southwest of the main building on the high spots all along the driveways and paths.

The soil is a very good one, a good layer of black loam on top being present. It will take a great number of years, however, for the trees and shrubs to acclimatize and show a healthy growth, as the land is still bare prairie now and is very much exposed to the winds and the weather. There is no vegetation noticeable worth mentioning except an abundance of prairie roses.

The college committee intends to begin with an expenditure of \$1,000 for the enterprise, laying out of the grounds, etc.

THE OBITUARY RECORD.

Charles Bertles Jefferson, superintendent of West Laurel Hill Cemetery, Philadelphia, a member of the Association of American Cemetery Superintendents, died suddenly at his home, 1321 North Fifty-seventh street, Philadelphia, Sunday, September 21, 1913, of heart disease, and was buried in West Laurel Hill Cemetery. He is survived by a widow and four children.

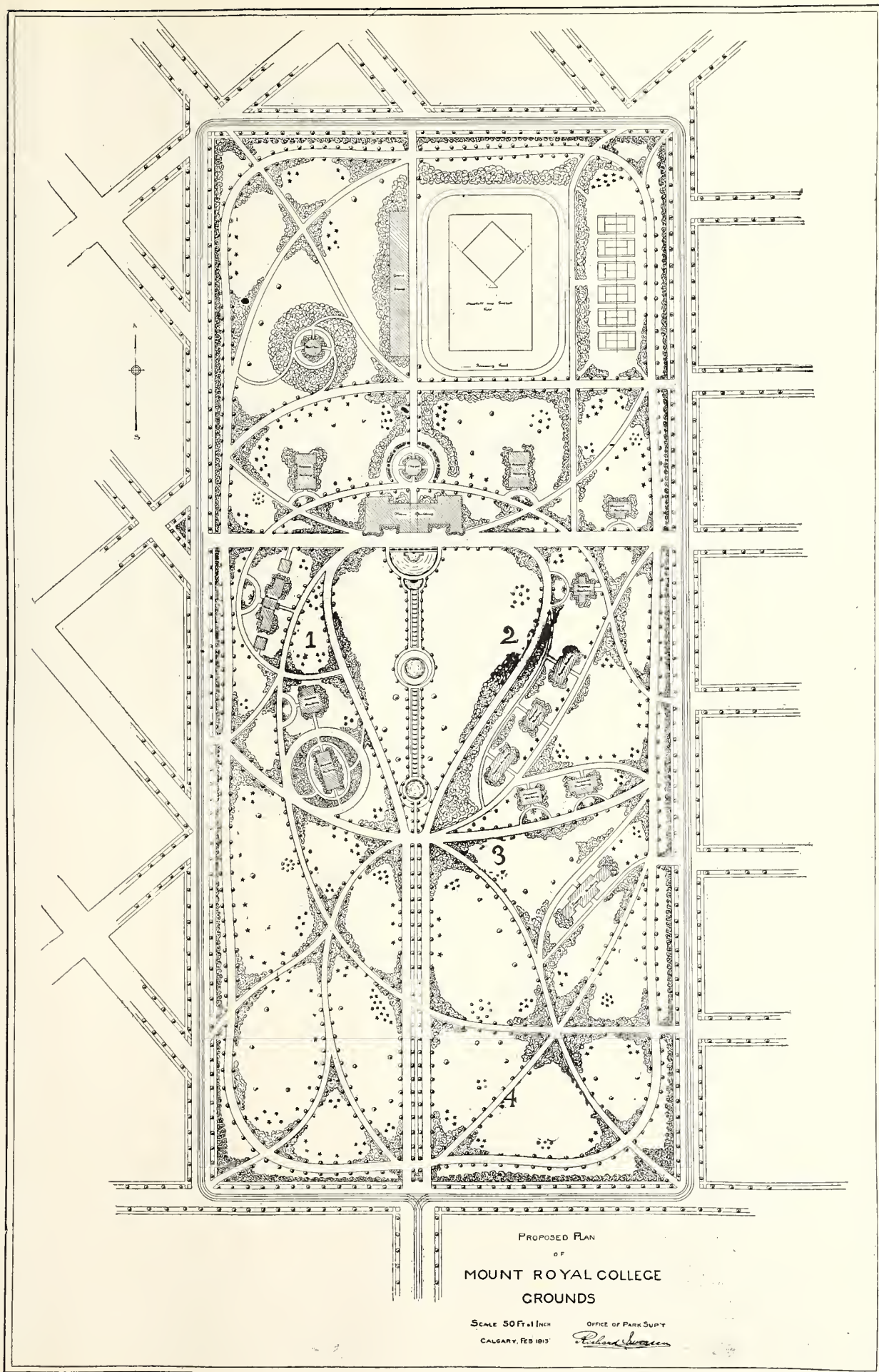
Mr. Jefferson was 43 years old and for twenty-seven years had been connected with West Laurel Hill Cemetery, his first employment being with that concern, where he rose through various positions to be superintendent. Mr. Jefferson was particularly interested in the greenhouse and lot decoration of the cemetery, which he saw grow from a small beginning to large proportions, there being some 3,000 endowed and special care lots besides the general planting of the place. The ten greenhouses just completed under him are considered model houses, and the greenhouse conservatory at the office, also just completed, is very large and affords fine display rooms. Mr. Jefferson was seriously injured in an automobile accident in 1912, being in the hospital nearly three months and away from his desk about six months. It is probable the effects of this accident contributed to his death. In addition to his cemetery work, Mr. Jefferson was a noted vocalist, singing in church choirs for more than twenty-five years. He was a member of Grand Fraternity and Junior Order of American Mechanics, and was widely known with a large circle of friends. He was a member of St. James Episcopal Church, of Hestonville, Philadelphia.

PERSONAL MENTION.

Mr. and Mrs. Charles M. Loring, of Minneapolis, were signally honored October 14 by a unique dinner given by William H. Eustis at the Hotel Radisson in honor of Mr. Loring's eightieth birthday. One hundred and forty guests had been invited and the dinner appointments and the novel decorations were a complete surprise to Mr. Loring. The dining room was laid out to represent Loring Park in miniature. To reach the table necessitated a walk through Loring Park. All along the walls was beautiful autumn foliage in golden yellows, russet and deep mahogany red; the floor was turfed and gravel outlined the paths that led around the two miniature lakes and through the tangle of flower beds and pretty woodland nooks. On each table was a centerpiece representing the sports and amusements in the parks. Football players occupied the center of the first table, the tiny dolls in costume busying themselves in football attitudes on the field. On the second table were seen men at water sports, such as canoeing, sailing and boating. A woodland scene from Glenwood Park, showing persons rambling in pleasurable pursuit among the trees and shrubbery, formed the centerpieces on the next table. A toy menagerie was the centerpiece of another table, illustrating wild animal life as it is seen at Minnehaha Park and Longfellow Gardens. Congratulatory remarks were made by old-time friends of Mr. Loring; two former university presidents, Cyrus Northrop and Dr. W. W. Folwell, Mayor Nye and other leading citizens.

Myron H. West, of the American Park Builders, Chicago, has been engaged to lay out a modern townsite on the Indian River, near Stuart, Fla.

Gustav W. Rosenthal, a machinist, has been chosen by the cemetery board as sexton of Riverside Cemetery, Oshkosh, Wis., to succeed W. J. Noe.



CEMETERY MEMORIAL OF RARELY ARTISTIC TYPE

Seldom in the history of American monumental art has a finer type of sculptural expression been conceived as a private cemetery memorial than is to be seen in the Hixon memorial in Oak Grove Cemetery, La Crosse, Wis.

This beautiful work, executed by Leonard Crunelle, the Chicago sculptor, embodies a sculptured group typifying Motherhood. The benign, watchful presence of the Mother, and graceful, appealing types of Children, wrought into a group of simple and impressive proportions, cannot fail to carry a message to the most casual and unlearned observer. The beauty and dignity of family ties have seldom been more happily expressed in art.

Every aspect and accessory detail of this monument and its surroundings have been studied with a care and a fine sense of harmony that is rarely found even in a public monument of national importance. The massive granite tablet that forms the background and pedestal blends harmoniously with the lines of the sculptured group, and the entire monument blends just as naturally into its setting in the landscape. The architectural portions of the memorial were designed by Pond & Pond, architects, of Chicago, and the landscape setting, the planting and improvement of the lot was designed by Phelps Wyman, the landscape architect of Minneapolis.

The fine old oak that forms a protecting canopy fits well with the simple dignity of the monumental outline, and the evergreens behind throw the memorial into strong relief.



HIKXON MEMORIAL, LA CROSSE, WIS.
Leonard Crunelle, sculptor; Pond & Pond, architects.



LOT AND SURROUNDINGS OF HIKXON MEMORIAL, LA CROSSE, WIS.
Planned by Phelps Wyman, landscape architect.

Lorado Taft, the well-known Chicago sculptor, who watched the progress of the work in the sculptor's studio, says of it:

"I thought as I watched the artist's patient, conscientious efforts toward perfection, and I still think that nothing more beautiful than this group has come from an American sculptor's studio within the last ten years. His group has a fine compactness, a sculptural simplicity of mass worthy of the best period; while within its almost austere contours is a wealth of light and shade."

The lot on which this memorial stands is 100 feet wide and 30 feet deep, facing an important drive, and our photograph of the surroundings of the memorial indicates with what care the landscape architect has made the planting and surroundings add to the effectiveness of the memorial. At the entrance to the lot from the drive are two granite seats which are a part of the monumental composition.

The granite work of the memorial was cut by Barclay Bros., of Barre, Vt., and the bronze group cast by the American Art Bronze Foundry, of Chicago.

ROAD and TRAIL BUILDING in the NATIONAL PARKS

(Concluded)

*An address before the National Park Conference by
E. A. Keyes, Inspector, Department of the Interior.*

In Europe the system of constant maintenance is generally used, while in the United States the method of periodic repairs seem to be more commonly used, although in the United States both methods have their advocates.

I believe in our national parks it will be found advisable to adopt a combination of the two above-mentioned systems of repairs—that is to say, after the snow and ice have cleared away in the spring the entire road system should be given a careful overhauling and that slight continuous maintenance will have to be applied throughout the season for which the park is open to the public.

In the construction of this class of road throughout the national parks there is very little which can be said, except that standard widths and limited grades should be established. It will be impracticable, of course, in this class of road or trail to use rock as a surfacing material, but I believe that the lines should be carefully located by instrumental work, so as to select the easiest grades, and I believe it would be well as fast as these trails are located to have a progress map upon which they can be immediately plotted. This would greatly facilitate tourists in getting around through the parks, as well as for administrative purposes.

It is thought that a width of about six feet would ordinarily be sufficient for these trails. This width, of course, could be increased at the precipitous points, where the grade of the trail might also be decreased somewhat in order to give a feeling of more security to the tourists and to lessen the danger. It is also deemed advisable that these trails at the precipitous points should ordinarily be in-cut—that is to say, by benching back rather than to build out a dry rubble wall, the grades, of course, to be the best it is possible to obtain and reach the points of interest. In this class of construction I believe it would be wise to adopt some form of light equipment which could be packed on animals' backs.

It is probable that the question of what shall be the proper width of tires to be used on the roads of our national parks has presented itself to some of the superintendents and it is therefore thought that remarks on this subject will not be out of place. It is very essential that the wagon in passing over the road should help to make and preserve it rather than to destroy the road, and, therefore, in so far as the road alone is concerned and within reasonable limits, the broader the tire the better for that particular road. Quoting from N. S. Shaler, formerly president of the Massachusetts State Highway Commission:

"The matter of width of tires has been a subject of much remark. There has, indeed, been no end of idle talk concerning this matter, much of it directed to the point that our American builders have shown a lack of judgment in building with narrow tires, while they should provide their vehicles with broad treads such as are in use in Europe. The fact is that in this, as in many other matters in which our people have departed from ancient and Old World customs, they have been led by wisdom and not by folly. This will, on a little consideration, be made evident. Where there is no definite pavement, as is the case in ninety-nine one-hundredths of the American roads, the wheels have in muddy weather to descend into the earth until they find a firm foundation on which to rest. In so doing they have to cleave sticky mud, which often has a depth of a foot or more. If these wheels were broad tired, the spokes would also have to be thick and the felloes wide, so the aggregate holding power of the mud upon the vehicle would be perhaps twice what it is at present. It is useless to talk about the advantage of a broader tread for the wheels of our wagons until we have a thoroughly good system of roads which they are intended to traverse. Any laws looking to this end would be disobeyed because of private needs so general they would amount to public necessity. When the roads of a district are made good, only as to main lines of communication, the side roads and farms still demand the peculiar advantages afforded by the narrow tire."

Quoting a little further from the same authority:

"The best argument against the enactment of laws concerning broad tires is found in the fact that the numerous and long-enforced English statutes on this matter have of late years been abrogated, a century of experience having shown that they are difficult to administer, and generally disadvantageous."

The Massachusetts Highway Commission, after an elaborate discussion of the matter, says:

"It is a matter of doubtful expediency to endeavor in the present state of our highways, by general legislation, to control the width of tires and diameter of wheels."

The above-quoted articles are entirely logical with reference to the highways of our states and counties, but are not entirely applicable to the roads of our national parks, for the reason that there are not so many conflicting interests concerned, and I believe that the adoption of some standard width of tire tending to

preserve the roads should be carefully considered.

Although there is not much difference between the tractive power of broad and narrow tires, the latter are much more destructive to the road, but in deciding upon the proper width of tire there are other factors beside the road that should be considered. Other things being equal, a wagon with broad tires is not so easily managed as one with narrow tires, and for this reason might prove dangerous on some of the roads of the parks; but it is believed that it would be well to investigate this matter from actual trials with wide-tired vehicles.

One of the most important problems in connection with road construction and maintenance in our national parks is the suppression of dust. In some of the parks this is bad enough now, but when the motor vehicles are admitted it will be worse, and at the same time the damage to the road will also be worse than is now found from the use of iron-tired vehicles. A general discussion of the causes and effects of this subject will not be entered into, but in a general way it is thought a few remarks would be applicable.

The dust problem in our national parks must be handled in one of two ways. First, by constructing the roads in such a manner by incorporating such materials in the aggregate as to reduce to a minimum the formation of dust; or, second, by treating the surfaces of the existing roads with materials which will give the same results. The latter may be either by the use of water or some of the known emulsions. While neither of these methods can be said to be entirely satisfactory at the present stage, yet I believe where the materials are used in the proper proportions, and both materials and methods of construction are better understood, that by the first method, that is to say, an oiled macadam road, which is constructed by the incorporation of an oil which has an asphalt base during construction, good results may be obtained, and it is believed that in those parks where the dust is especially troublesome that a short piece of this class of road should be actually constructed as an experiment.

The heavy oil with an asphalt base, such as is found in our western states, has a very binding quality and is superior for this purpose to our eastern oils, which have a paraffine base. On account of its greasy nature, oil with a paraffine base has very little cementing or bonding quality and is, therefore, unsuited for road construction. Those parks in the vicinity of Bakersfield, Cal., where probably the best oil for road construction is found, should certainly

make some experiments along these lines, as it is thought that the cost of transportation will not make this material prohibitive.

If the construction of the oiled macadam road in some of our national parks should be found satisfactory, the item of cost of sprinkling saved thereby should not be overlooked, as in some instances the cost of this item is considerable, and I call attention to the estimate for the necessary equipment for road sprinkling in the report of the acting superintendent of the Yosemite National Park for 1908, which is about \$18,000 for approximately 10 miles of road.

There are very little data available covering actual cost of an oiled macadam road, but that which I am able to find would appear to fix a maximum cost for the addition of oil over an ordinary macadam road of about 14 cents per square yard. At this figure the first cost of applying oil to a 16-foot road for a stretch of approximately 10 miles would be about \$13,000, or a saving of about \$5,000 between the first cost of the oiled macadam road and the purchase price of the necessary equipment for sprinkling the same road.

Quoting from an article on oiled macadam road construction and maintenance, found in the transactions of the American Society of Civil Engineers for March, 1911, Mr. Ross, who has charge of the roads for Newton, Mass., says:

"Asphaltoilene was used in 1907 on two roadways in Newton, a surface of 16,822 square yards being treated at the manufacturer's contract price, 6 cents per square yard. At present these roads are in very good condition.

It will be noted that this statement was made after the road had been in use about four years. Quoting further from the same article:

"Several macadam-surfaced streets having varying grades up to a maximum of 9 per cent and subjected to heavy horse-drawn and auto traffic were submitted to the liquid asphalt treatment. The method was as follows: A quantity of sand was heated to a temperature of 200° F., dumped in a pile, leveled, and asphalt was poured over the hot sand in the proportion of one gallon of asphalt to each cubic foot of sand, and then the whole mass was turned with shovels, or mixed in a concrete mixer (the latter being preferable on account of the cost). This work was done at the pit. The mixture was teamed to the work and spread on the roadway to a depth of one-fourth of an inch, being raked even with 14-tooth wooden rakes. Rolling was not considered necessary and the street was kept open at all times. The cost of this treatment was about 3 cents per square yard. It has the advantage of leveling and building up the surface of the road, each new application providing a new wearing surface. This work has remained in per-

fect condition without further expense since the summer of 1909."

There has been considerable of this class of work done in Spokane, Wash., but at this location it cannot be said to have proven entirely satisfactory, but I attribute this more to the fault of construction than to the principle involved.

Along the lines set forth in this paper the following conclusions are drawn:

(1) That there should be located in each one of our national parks, where the revenues and appropriations would warrant it, an assistant engineer to act under the direction of and in conjunction with the superintendent of the park, all reports including plans and specifications to be submitted by the superintendent to a central office to be in charge of a man having technical knowledge of such matters, this office to be equipped to prepare proper plans and specifications for the various classes of construction work, which will arise in the parks.

(2) The adoption of standard plans and specifications, in so far as possible, for the various classes of construction.

(3) Careful surveys and estimates for future extensions of the work, in accordance with a general road and trail plan previously adopted.

(4) The carrying on of experiments with oil and tar macadam roads and a general discussion among the superintendents of this subject, especially as to dust preventatives.

INJURY TO PLANTS BY SMOKE

*Address by E. Engleman, Gardener, Middle Division, Pennsylvania Lines,
at Nashville Convention of Railway Gardening Association.*

It is my object to explain to you as well as I can the injury caused by smoke to growing plants, trees and shrubs. We must have some idea of smoke in order to better understand its action on vegetation. The following gases occur in smoke from coal, viz., carbon dioxides, 136/10 per cent.; dioxygen 3 per cent.; carbon monoxide 1 per cent. and the various compounds of nitrogen, as nitrogen sulphide, nitrogen oxide, etc., 82 per cent.

Carbon dioxide in the quantity found in smoke is beneficial to plant life as the leaves of the plants will assimilate carbon dioxide and give off oxygen. The quantities of dioxygen and carbon monoxide are so small as to be negligible in their effect on vegetation, but the various compounds of nitrogen which compose 82 per cent of the volume of smoke are very injurious to plant life. The nitrogenous compounds of sulphur enter the stomata of the leaves and attack the membrane of the cells. The chlorophyll granules lose their shape and become colorless and form a homogenous mass, thus preventing the leaves from performing their natural function of digestion, the absence of which causes an emaciated condition of the tree

or shrub. The bleaching of the chlorophyll granules cause the leaf to assume a yellowish color and finally fall to the ground, through lack of nourishment.

The number and activities of the soil bacteria are greatly reduced because of the sulphuric acid, a part of the smoke. The nitrifying bacteria especially are very sensitive to an acid soil, and soil exposed to long action becomes sterile. The physical properties of smoke are small particles of carbon, together with a sticky tarry matter which settles and sticks to everything it comes in contact with. The visible smoke or particles of carbon are very injurious to plant life. The soot settles on the leaf and hinders the intake and assimilation of carbon dioxide on the minute pores or stomata. This carbon dioxide is converted in the plant into starches, sugars and other carbohydrates. Thus plant life is interfered with, growth is impossible and death often results. It is almost impossible to maintain a healthy plant life in a smoky atmosphere.

Besides the chemical and physical injury to plants, smoke proves injurious because of the lessened amount of light which reaches the leaves. The energy of the

sunlight is required by the green leaf for the conversion of carbon dioxide into carbo-hydrates, and when as much as 40 per cent. of this energy is cut off by the smoke cloud the effective growth of the plant must be very considerably checked.

The different trees and shrubs possess varying powers of resistance in their bark and leaves which renders them more or less susceptible to injury from smoke, and I offer from my observation of many years the following list of ornamental deciduous trees in the order of their resistance, *Ailanthus*, *Platanus orientalis*, *Platanus occidentalis*, *Cerasus serotina*, (Wild Cherry), *Salisburia adiantifolia*, *Acer platanoides*, *Populus*, *Quercus rubra*, *Palustris*, *Sassafras officinalis*, *Pyrus*, *Aesculus hippocastanum*, *Ulmus campestris*, *Fraxinus*, *Salix*, *Robinia*, *Tilia*, *Betula*, *Fagus* and *Prunus*.

From my observation a few examples will explain the resistance of fruit trees to smoke. The plum seems to be the least resistant, while cherries are better growers in smoky atmospheres. Grafted cherries are more sensitive than wild, and sweet cherries resist less than the sour. The apple does not hold out as well as the pear.

Smoke affects nut trees very much while the mulberry seems to bear it without much injury.

The ornamental evergreens are very sensitive to a smoky atmosphere on account of being continuously exposed to the oppressive effects of gases, while deciduous trees and shrubs renew their foliage, which seems to be open to attack more than any other part of the plant. The following varieties, given the proper soil and climatic conditions may be successfully planted with good results in locations where smoke prevails, and are given in the order of their resistance to smoke: *Thuja*, *Juniperus virginica*, *Pinus austriaca*, *Pinus silvestris*, *Pinus montana*, *Abies concolor*, *Tsuga canadensis*, *Picea* and *Retinospora*.

All shrubs cannot be planted with equal success in our station grounds and I have found that the following are the most likely to succeed where a smoky atmo-

sphere prevails: *Ligustrum*, with its various species, *Rhamnus*, *Viburnum*, *Symphoricarpos*, *Syringa vulgaris*, *Sambucus*, *Forsthia*, *Weigela*, *Spirea*, *Crataegus*, *Cornus*, *Althea*, *Euonymus*, *Americana*, *Exochorda*, *Lonicera*, *Ribes*, *Hydrangea*, *Berberis Thunbergii*, *Cercis Canadensis*, *Tamarix*, *Aralia*, *Kerria* and *Hypericum*.

Plants may be injured by smoke in four ways:

1. By the presence of injurious chemical elements in the smoke which injure the cell structure.

2. By the free acid in the smoke coming into contact with the ground, thereby destroying the beneficial bacteria.

3. By the tarry matter in the smoke coating the leaves and choking the pores thereby smothering the plant.

4. By the smoke cloud limiting the available sunlight.

PARK NEWS.

The State Forestry Board of Wisconsin has already started its work of improving the state parks. The last legislature passed a law placing the duties of improving the parks owned by the state upon the park board. State Forester E. M. Griffith, of Madison, recently returned from a visit to the parks and in three of the parks he has already placed a crew of men to blaze trails and improve the roads. The last legislature appropriated \$18,000, available March 1, 1914, for the improvement of Peninsular Park in Door county. This park is composed of 3,700 acres and a forest ranger with a crew of five men have been placed at work making improvements. Practically the same work is being done at the state park at Devil's Lake. This park is composed of 1,040 acres of land and the legislature has made an appropriation of \$12,000 for improvements. A crew of five men is now at work in this park. Senator Glenn is looking after the Glenn Park at the junction of the Mississippi and Wisconsin rivers until a forest ranger and a crew can be put to work. This park is composed of 2,000 acres and an appropriation of \$10,000 has been made for improvements. October 1, a ranger and crew was put at work in the interstate park at the dells of the St. Croix. This park includes 700 acres of which 550 acres are on the Wisconsin side of the river. The appropriation for this park was only \$2,000, because previous legislatures had made appropriations for improvements. No appropriation was made for improvements of the Brule river park in Douglas county, but the work can be carried on under the forestry reserve law. This park occupies 6,000 acres

of which 4,500 acres were given to the state by F. E. Weyerhaeuser, of St. Paul.

The City Plan of Lincoln, Neb., being prepared by the American Park Builders, of Chicago, contemplates the moving of the capitol to a new position north of the city, where the new structure will be flanked by state, county and city governmental buildings. A new layout for a union station is provided which will cause considerable rearrangement of railroads leading into and out of the city. It is planned to eliminate one road which now leads through a densely populated section. The plan also contemplates the rearrangement of the University of Nebraska, moving of which has been a live topic in the Nebraska Legislature for a number of years. The plan contemplates a carefully worked out park system, together with a number of playgrounds and a municipal cemetery. A comprehensive system of streets has been designed which will take care of population several times that of present size.

At present the East St. Louis, Ill., Park Board owns 1,300 acres of land, divided among ten parks, the sizes of which range from 11/100ths of an acre to 1,125 acres. Lake Park is the big park which will need years of work to make it realize the Park Board's plans. It contains what was called "Pittsburg Lake." Thousands of dollars have been spent in a vain effort to make it dry, tillable ground. The Park Board intends that it shall remain a lake, but that it shall be so managed that it will be a pleasure to the community. The members of the Park Board—Edmund Goedde, chairman; W. C. Thrasher, Dr. H. C. Fairbrother, John H. Thompson and M. A.

Bright—have directed their superintendent, Emmett P. Griffin, to give the best attention possible to the "near home" parks. Park concerts and public playgrounds have been two of the new features of this year's park work. The playgrounds were held in Emerson Park, acreage 3 67/100, all vacation, under the direction of Miss Helen Bernard.

A system of boulevards and parks extending from Rock Island, Ill., through to Silvis was one of the proposals given consideration at a meeting of the Greater Moline Committee, and a committee was appointed to investigate the possibilities of a park system for Moline Township, under a board, as provided by the state law. The suggestion was made by Secretary Arthur Brown, who is a member of the committee.

Improvements and Extensions.

Plans for a new twenty-acre playground, to be built by the Fernwood Park Commissioners, prepared by Myron H. West, of the American Park Builders, have been recently accepted, and preparation is being made to begin the work of building the park at an early date. The park is to be thoroughly equipped for playground purposes, the field house and swimming pool design calling for structures costing approximately \$50,000. The cost of the entire improvement is figured to be about \$130,000. Fernwood is a park district of Chicago, in the neighborhood of 103rd and Wallace streets.

Under the direction of Superintendent David A. Seymour, of the Park Department of Buffalo, N. Y., some preliminary work is being done on the city's newly acquired small parks, and the hope of the Park Board is that some of the new "breathing spots" will be additions to the park system in reality by next summer. Willert Park will be ready, it is confidently expected. This park is being leveled off and trees are being planted by City Forester Filer. Little more than very preliminary work has been done on the other small parks, but some of them should begin to assume parklike appearance by next year. Among them are Schiller Park, out near Genesee street and Scaiaquada Creek; Polonia Park, in Curtiss street, the addition to Riverside Park in Black Rock, and the Lanigan Park addition. The last named park is about ready for park honors, however, with the completion of a fence which the department is erecting around it at the present time. Lanigan Park is in Perry street.

Park Commissioner Dwight F. Davis, of St. Louis, has asked the Board of Public Improvements for \$2,000,000 to build up park property and \$500,000 for the zoo. The commissioner says that the parks have run down and that the \$2,000,000 will be necessary to put the system into proper condition.

Desiring to convert the site now occupied by the Pennsylvania Hospital for the

Insane into a public park, the City Park Association, of Philadelphia, has appointed a committee to confer with the management of the institution. Eli Kirk Price, president of the association, is on the committee.

The Park Board of Joplin, Mo., has awarded the contract to the Ideal Concrete Works, of Joplin, Mo., for the construction of a pavilion in Mineral Park. It will be 18x36 feet and will be built of concrete blocks, at a cost of \$1,135. In the upper portion of the pavilion will be a handstand. The room underneath the stand will be used as a rest room and will be provided with seats and conveniences. M. F. Keith is superintendent of parks.

New Parks.

The East Dallas Park Improvement League, Dallas, Tex., has appointed committees to request the purchase of a 17-acre tract for park purposes. The park land would cost the city about \$120,000, to be paid for from a recent bond issue. Dr. J. H. Dean, president of the league, is head of the committee in charge of the park matter.

The Board of Estimate of Greater New York is considering the plan for laying

out a public park to comprise the triangular plot bounded by Broadway, West 174th street and Wadsworth avenue. Property holders whose property is benefited under the plan will pay one-half the cost of \$25,000.

The City Commission of Hutchinson, Kan., selected the six blocks at Seventeenth and Main, south of the state fair grounds, comprising about twenty-six acres, for a new north side city park, which will be improved under the direction of Commissioner of Parks R. H. Flinn.

The Merchants' Association of Salina, Kan., is considering the parking of the Union Depot grounds. E. H. Merrill is one of the leaders in the movement.

Crookston, Minn., will soon have a substantial addition to its park system through the donation of a forty-acre tract in Jerome's addition, lying along the river bank. The new addition will come through the initiative of Captain M. R. Brown, of Minneapolis, a former resident of Crookston.

The Grandville Avenue Improvement Association, Grand Rapids, Mich., has petitioned the Common Council for the transfer to the Park Board of a strip of land at Grandville avenue and Hall street.

tion, of that city, is arranging to carry on extensive landscape improvements at the cemetery. Among other features will be a large lake covering a natural ravine about midway of the company's holdings.

The ground formerly occupied by the old smallpox hospital on Eastern avenue, S. E., Grand Rapids, Mich., was dedicated to the Park and Cemetery Commissioners recently and will become a part of Oak Hills Cemetery.

The Mt. Calvary Cemetery Association has platted a five-acre addition to the cemetery, which is now open. The addition joins the old cemetery on the east.

The commissioners of Oakland Cemetery, Little Rock, Ark., have decided to beautify the cemetery and have authorized the employment of F. M. Blaisdell, of Little Rock, landscape architect, to prepare plans. They have also decided to build a fence on the south side of the grounds and to reconstruct the gates.

New Cemeteries.

Incorporation papers for the Cottonwood Cemetery Association of Oak Hill, in Peoria County, Ill., have been filed. W. D. Wrigley, Isaac Wantling, William

CEMETERY NOTES

Park Superintendent Goebel, of Grand Rapids, recently recommended the removal of one of the pumps from the Oak Hills Cemetery and its installation at Greenwood. He suggests the purchase of a new and larger pump for Oak Hills. There has been a question raised in the past regarding the wisdom of the policy pursued by the park officials in maintaining a private water-works system for the cemeteries. These critics have argued that the city water supply should be used. Superintendent Goebel asserts that the maintenance of the cemetery lots is not paid for by the city at large, but by the lot owners. Therefore, when he is able to secure water for 2½ instead of 4½ cents per 100 cubic feet he believes the board is justified in maintaining its own system. Further, the location of the cemeteries is such that during the summer seasons adequate city pressure is impossible to secure, and it is just at these periods that ample water for sprinkling the cemetery lots is vitally necessary.

The regulations of Oakland Cemetery St. Paul, specify limitations to the sizes of monumental work on lots. When people are told these limitations they sometimes forget them and are troubled when they order something too large for the lot. Superintendent F. D. Willis has therefore devised a lot selection slip to prevent such

troubles. The purchaser may have a duplicate of the slip if he wishes. It is about three by six inches in size and reads as follows:

OAKLAND CEMETERY.

St. Paul.....191...

The Secretary,

302 Germania Life Bldg.,

Fourth and Minnesota Streets.

Mr.

has selected Lot No.....Block.....

Area..... \$.....

Monumental work may be placed not exceeding in size:

Monument base.....

Grave marks 2-0x1-0,
not over 4 inches
high.

.....

I have noted the
sizes of monumental
work allowed and
agree thereto.

.....

Purchaser.

Improvements and Additions.

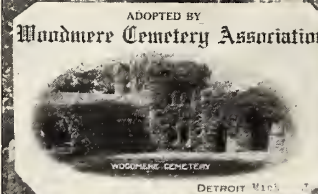
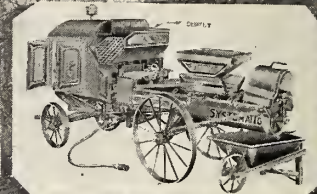
R. B. Pluckett, general manager for the National Sureties Co. of St. Louis, fiscal agents for the Valhalla Cemetery Associa-

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IN 1909 Graceland Cemetery, Chicago, began to rebuild its roads with "Tarvia X," in place of plain macadam. In 1910 more work was done and the next year it was decided to extend the Tarvia work year by year as a steady policy until the entire road area of the cemetery was tarviated. The cost was 36½¢ per square yard, including stone, labor and Tarvia. In 1911 and 1912 the Tarvia work was satisfactorily extended, leaving only a half mile to be tarviated in 1913.

On November 2d, 1912, the Superintendent, George L. Tilton, wrote :

"Tarvia X," with which nearly all the roads in the Cemetery are paved, is proving very satisfactory. Only about a half mile of roads in the ground, remain unpaved. We expect to finish that part next year.

Compare this testimonial, backed by four years of practical work, with the experimental stretches on the basis of which other road binders are claiming success. Tarvia is the oldest of the bituminous binders, the one which has the most experience behind it and the one which many road authorities have settled down to using as a matter of fixed policy.

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"Tarvia A" for surface applications.

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Graham, T. J. Edwards and James Cox, of Peoria, are interested in the cemetery.

A special car took about sixty persons out to the dedication of the new Grace Lawn Cemetery at Flint, Mich., October 18. The officers of the company are: President, Edward Black; vice-president, Fred M. Warner; secretary, Louis G. Williams; treasurer, Bruce McDonald.

Sims & Sims, a St. Louis firm which makes a business of organizing and developing cemeteries, has organized a new cemetery at Decatur, Ill., turning over the property to an association of lot owners. The first directors of this association are Robert I. Hunt, John F. Mattes, W. M. Wood, E. P. Irving and Luther F. Martin. The cemetery will be located on the old Park farm, lying across the railroad from Fairview Park. Ernesto Bruhn, the landscape gardener for the Sims & Sims Co., is to lay out the grounds.



SYSTEMATIC CONCRETE MIXER IN WOODMERE CEMETERY, DETROIT.

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The increasing use of concrete work in parks and cemeteries makes the study of the best type of concrete machinery for this use of much value to superintendents.

We illustrate one of the style "AA" Systematic Concrete Mixers with a crushed stone bin attached, which has been adopted and operated by the Woodmere Cemetery Association at Detroit. It has been in use several years and has been found very serviceable and efficient.

This mixer is manufactured by the Cement Machinery Co. at Jackson, Mich., and they are built in many sizes and capacities to suit park and cemetery work of all kinds where concrete is used.

They have high wheels and low hoppers and are easy to move around. They are built so that no springs, chains or sprockets are connected with them. It has steel mixing barrel, 36 semi-steel mixing paddles, two clutches, one for the feed and one for the mix, and is equipped with gasoline engine or steam, or without either. It proportions automatically and accurately and requires no skilled labor to operate. All that is necessary is to keep the hoppers full of material, and the mixer proportions and mixes thoroughly.

This company also manufactures Batch Mixers and a complete line of ornamental

molds for ornamental concrete work and block and brick machines. The Park and Boulevard Department, with the city of Toledo, Ohio, adopted the systematic for their work, and any cemetery wishing to have one of these mixers and desiring to pay for it in a very short time over hand mixing, will do well to send to the Cement Machinery Co., Jackson, Mich., for their detailed catalog.

This company advises us that they have just shipped their fifth mixer of this type for the Brazilian Government at Rio de Janeiro, South America, where it is operated by the government engineers.

FRONT COVER ILLUSTRATION.

Little Lake Cemetery, Peterborough, Ont., Canada, has recently made a very important improvement by erecting an elegant iron fence and entrance gateway, which add materially to the appearance of this

already beautiful cemetery. This iron fence is a special design built by The Stewart Iron Works Co., Cincinnati, O., carrying out the plans and ideas in design of Architect W. Blackwell. We show on the front cover of this issue a halftone reproduction from the original photograph taken of this prepossessing entrance after it was erected, which shows to a good advantage not only the details of the fence and gates, but brings out some of the beauty of the landscape features of this modern Canadian cemetery.

A great deal of credit for the fine condition of Little Lake Cemetery is due to the hard work, persistent efforts and splendid ideas of Superintendent Frank Wise. The new entrance, as will be seen from the picture on the front cover of PARK AND CEMETERY, consists of two large double entrance gates, two walk gates and fence. The double gates are 12 feet 4 inches wide between posts and 8 feet 1 inch high at center, 7 feet 1 inch high at hinge bars. Long pickets are $\frac{3}{4}$ inch square, spaced 5 inches on centers, with ornamental malleable tops. Gates are hung on 2-inch square bars, with socket hinges, to massive stone piers. Frame bars are $2 \times \frac{5}{8}$ inches flat; the two top rails and bottom rail are $2 \times \frac{5}{8}$ inches. The scroll work is very ornamental and adds a highly finished appearance to the design of the gates. The large gates are fitted with automatic fastening blind lock, having slide latch inside. The walk gates on either side

of the double entrance gates are 4 feet 4 inches between posts and 6 feet 10 inches high at hinge bar, being of the same design as the large double entrance gates and are similarly fastened. The fence is made of $\frac{3}{4}$ -inch square pickets spaced 5 inches on centers and sets on coping.

PUBLICATIONS RECEIVED.

Illustrated 1913-14 Catalog of the Fruitland Nurseries of P. J. Berckmans Co., Augusta, Ga.

Wholesale Catalog, Fall, 1913, from Leasley Bros.' Nurseries, Chicago.

Premium List of the Fortieth Annual Meeting of the Horticultural Society of Southern Illinois, to be held at Anna, Ill., November 25 and 26, 1913; E. G. Mendenhall, Kinmundy, Ill., secretary.

Kelsey's Rhododendrons, Azaleas and Other Hardy American Plants; Fall, 1913, and Spring, 1914 list; Harlan P. Kelsey, Salem, Mass.

Trade List of Peonies, Fall, 1913, and Trade List of Iris, Phlox and Day Lily; Fall, 1913, and Spring, 1914; from Frank H. Wild Floral Co., Sarcoxie, Mo.

Special List, Collected Seeds and Seedlings; Forest Nursery and Seed Co., Rt. 2, McMinnville, Tenn.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC.,

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O. H. SAMPLE, Editor.

Sworn to and subscribed before me this 19th day of September, 1913.

[SEAL]

EMMA BERNSTEIN,

Notary Public.

(My commission expires March 2, 1915.)

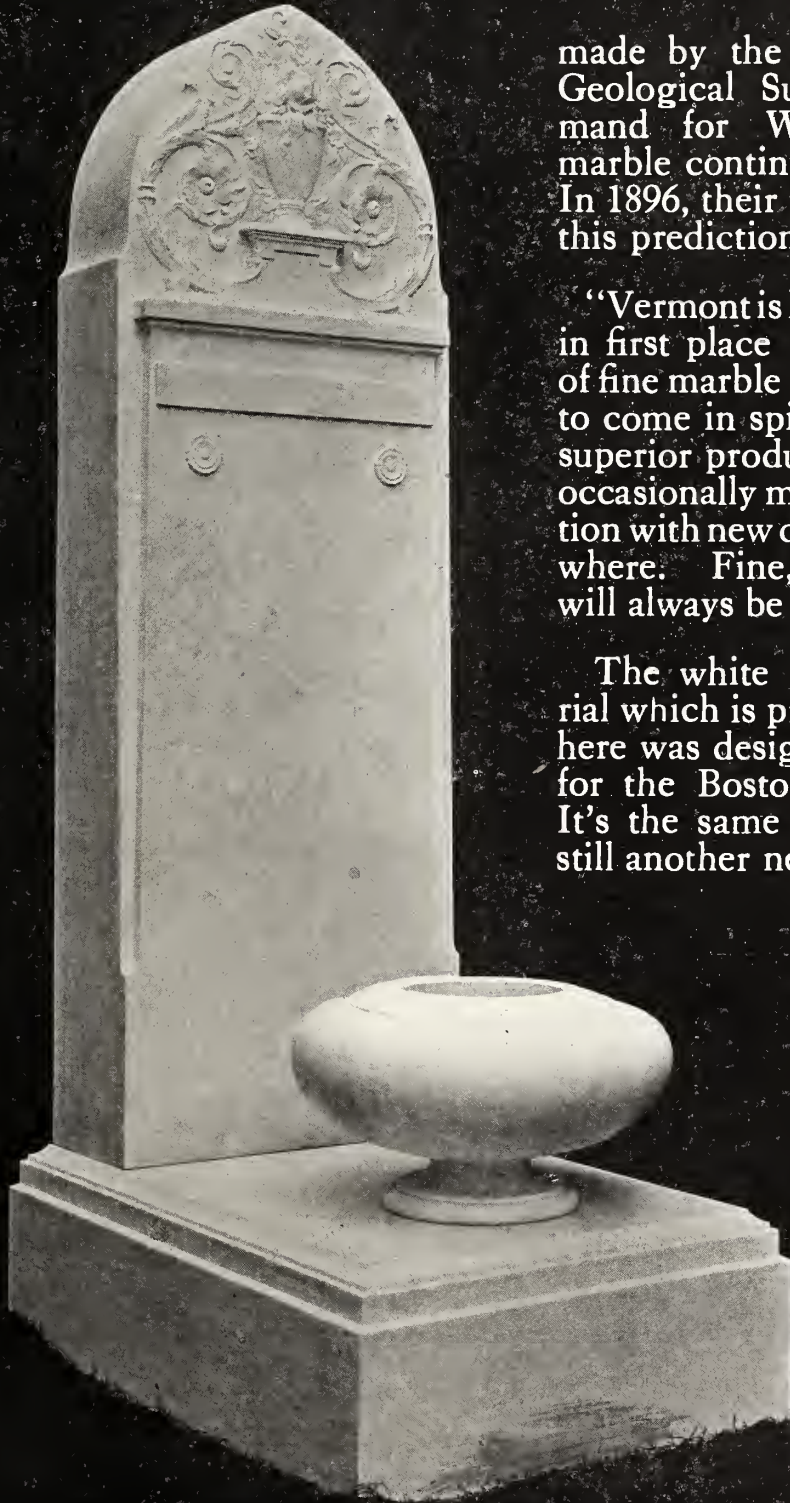
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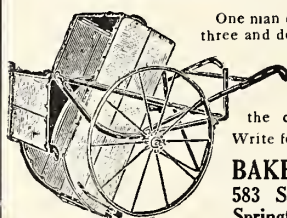
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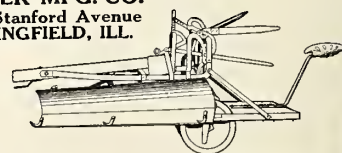
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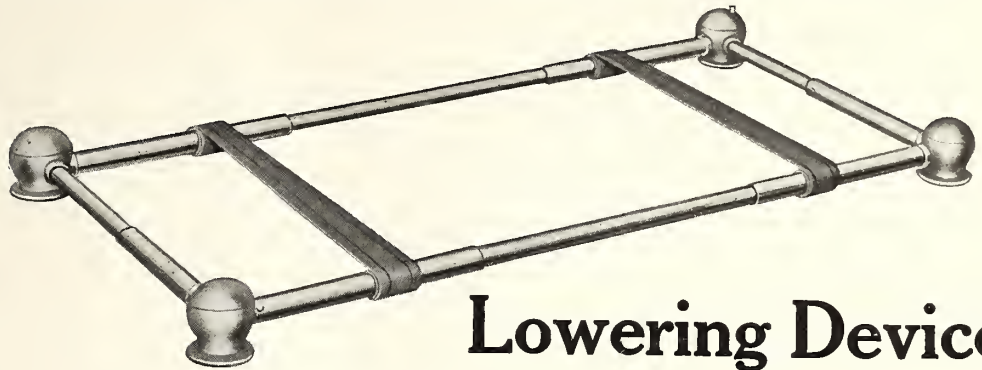
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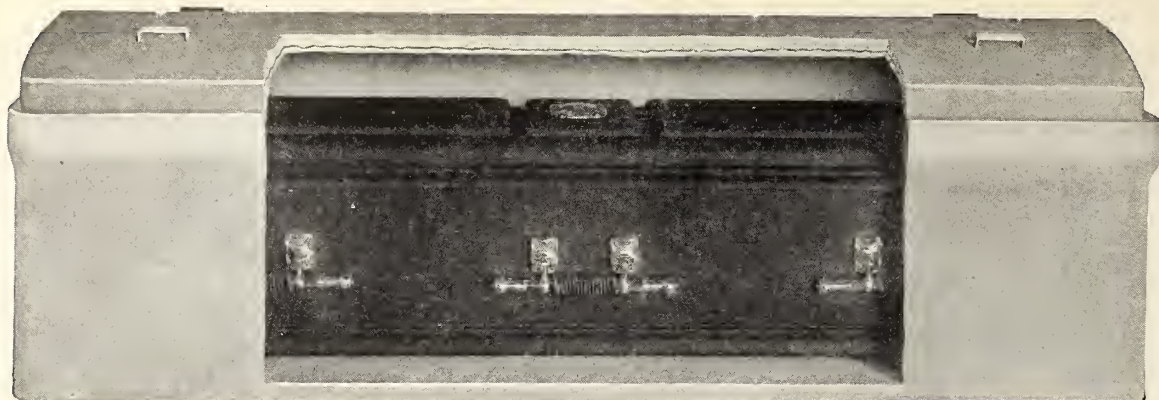
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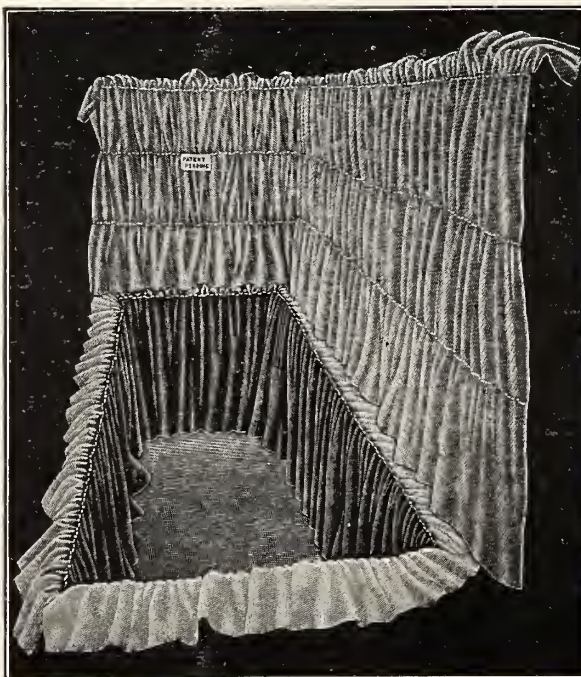
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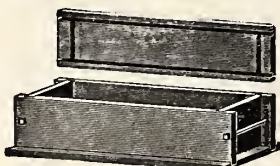
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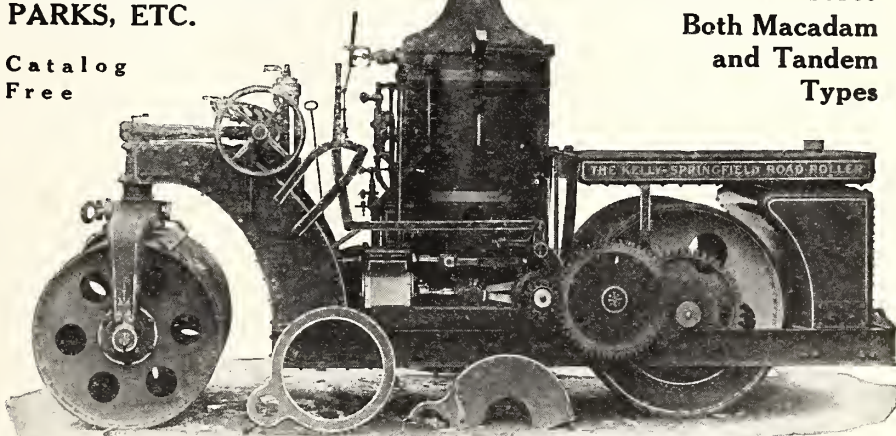
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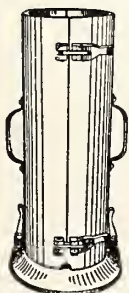
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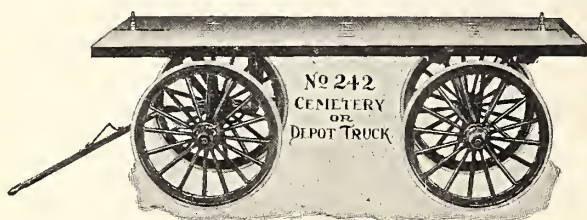
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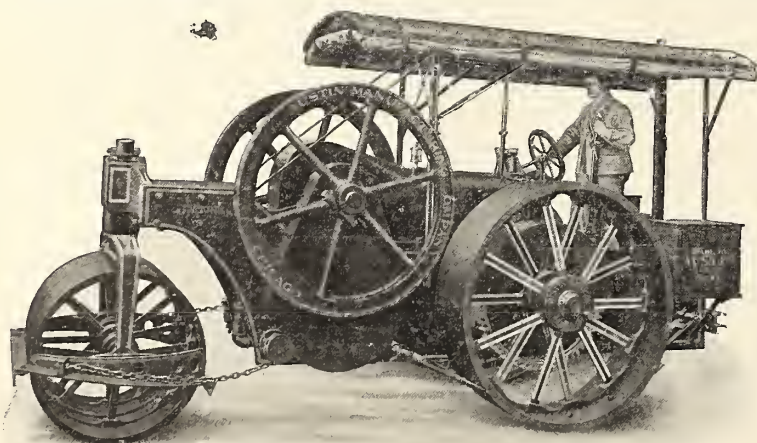
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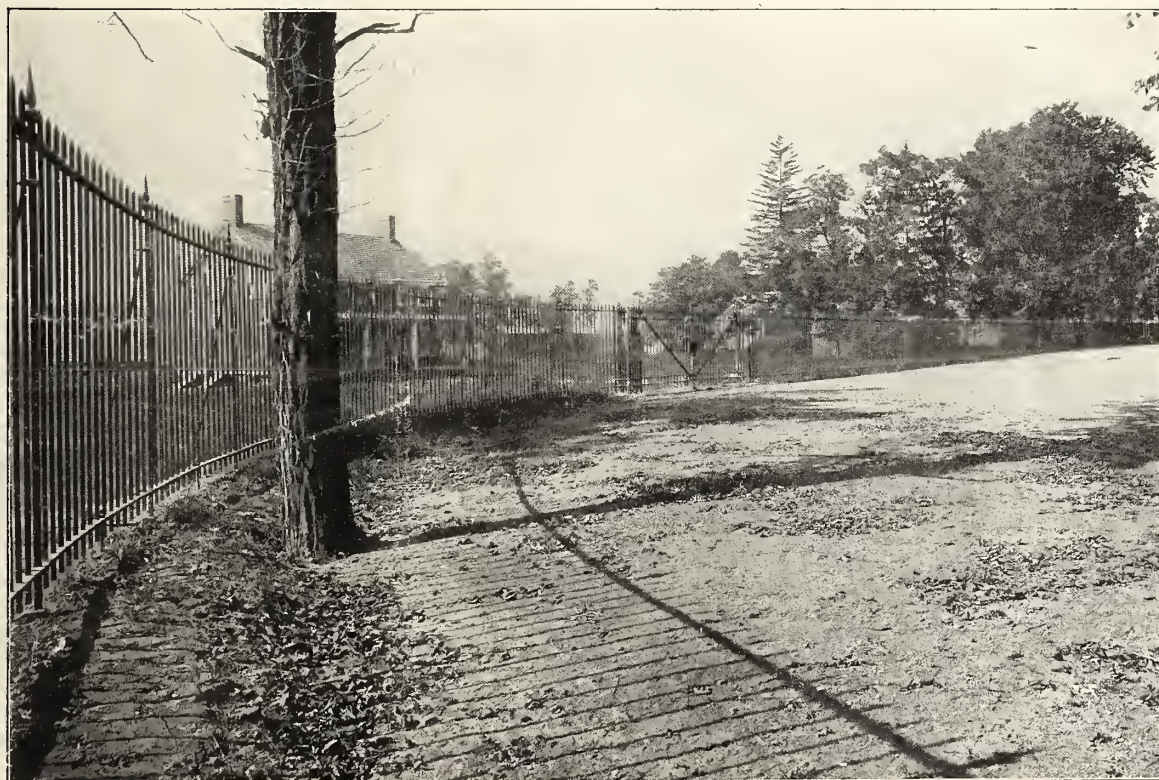
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Vol. XXIII., No. 10 DECEMBER, 1913

SPECIAL FEATURES IN THIS ISSUE

Then and Now in Greenwood Cemetery, Knoxville, Tenn.
Transforming a Village Cemetery—Pittosporum Trees of
Old St. Augustine—Trees and Shrubs of Colorado Rockies
—Modern Cemeteries in Vermont Granite Town



Chas. W. Leavitt
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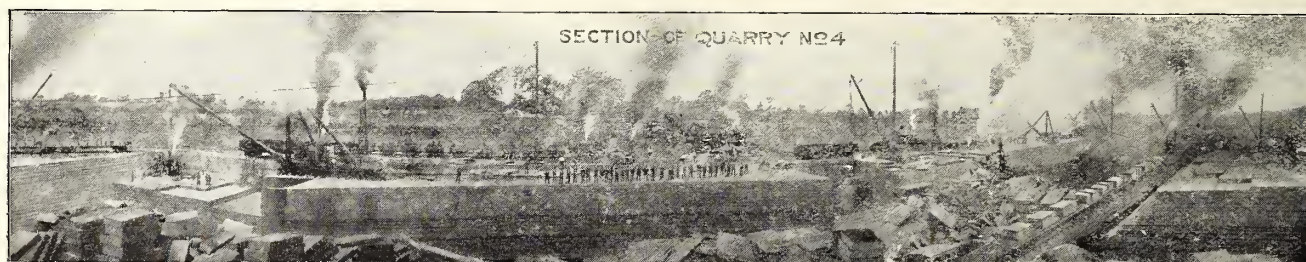
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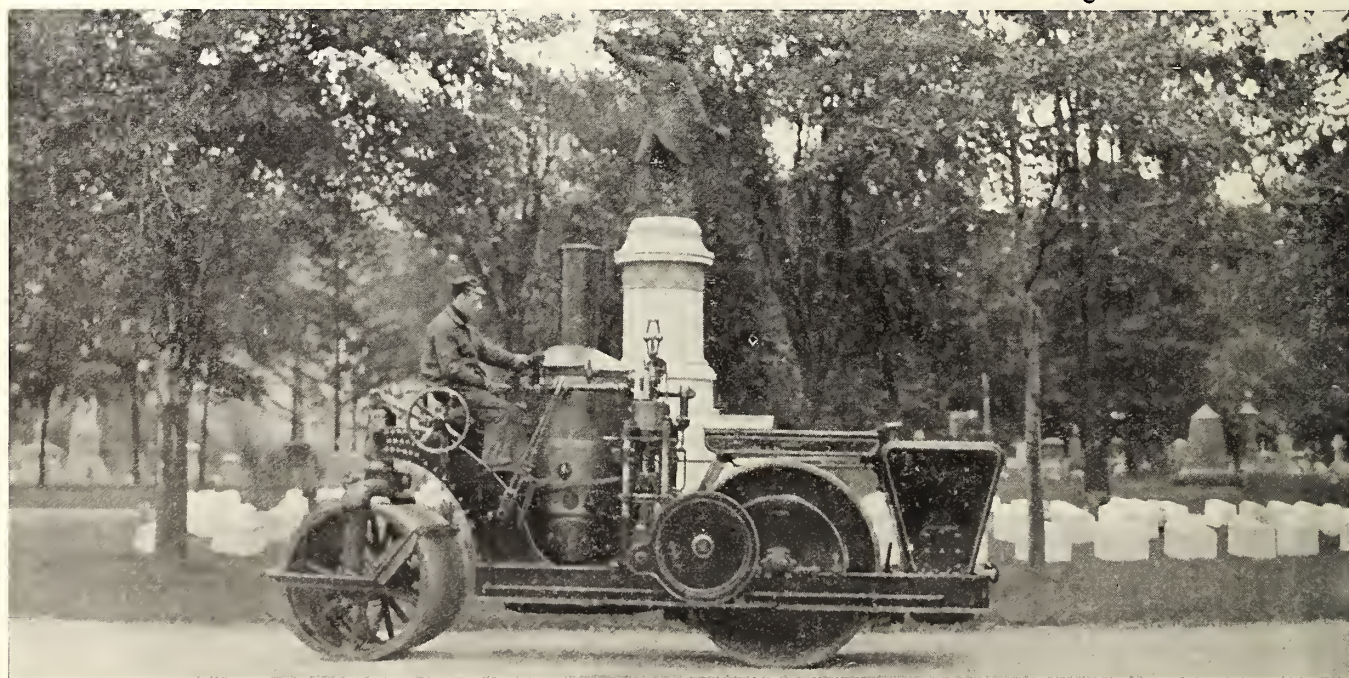
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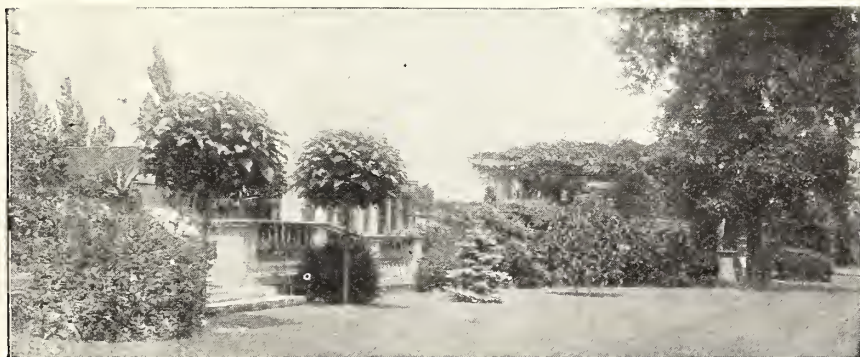
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VOL. XXIII

DECEMBER, 1913

No. 10

EDITORIAL

National Parks and Good Road Building

The office of public roads of the Department of Agriculture has been demonstrating the value of proper road building by the construction of certain object-lesson roads, and the forest service is carrying out the idea of national and state co-operation in road building. The law requires that 10 per cent of the gross receipts from the national forests shall be spent in the states in which the forests are situated. This money is expended for road improvement under direct control of the Secretary of Agriculture. The amount appropriated under this act, based on the receipts of the national forests for the fiscal year ending June 30, 1913, is \$234,638.68. From the 1912 receipts for this 10 per cent road item there is an additional \$134,831.10, which is still available. In administering the 10 per cent road fund, forest officers charged with the actual plans and expenditures in the neighborhood of their forests have, in almost all cases, secured an equal or a larger co-operative fund from state authorities for the building of certain pieces of road. With the money thus expended many impor-

tant roads are being built or put in repair. One on the Wyoming National Forest, six miles long, makes accessible to farmers a large body of timber and opens up a region of great scenic beauty. In northwestern Arizona part of the fund will be used in connection with the LeFevre-Bright Angel road, important because it makes accessible to tourists the Grand Canyon of the Colorado. In one place the ocean-to-ocean highway crosses the Apache National Forest, Arizona, and on this project the forest service and the local authorities co-operated enthusiastically. On the Florida National Forest in western Florida steel bridges and graded roads have, under the stimulus of this fund, taken the place of corduroy, bog and sand. This federal road fund is now available in all national forest states of the West. Just as fast as returns come in, the forestry officials say, a similar fund will become available in states in which Eastern national forests are being secured.

Missouri Supreme Court On Prohibiting Interments

The Supreme Court of Missouri, November 24, delivered an opinion on a ruling by Judge Woodson in the case of the Union Cemetery Association of Kansas City. Judge Woodson's divisional opinion in the case was adopted, namely, that the ordinance passed by the Kansas City Council, July 14, 1910, prohibiting any further interments in the cemetery, is unreasonable and tyrannical and that it is forever barred from being enforced. The cemetery is located in the vicinity of the new Union station in Kansas City, and it is intimated in the opinion that the wishes of real estate speculators entered largely into the enactment of the ordinance. Judge Woodson says that there is nothing in the record in the case to show that the cemetery is a menace to the public health, and that there was no complaint whatever on the ground of sanitation until the location of the new Union station was determined upon. There are 50,000 people buried there and the realty

holdings of the cemetery association embrace forty-nine acres. There are 1,000 Union soldiers interred in the cemetery. Among the notable dead are General George C. Bingham, William Gilliss and many others. The total value of the property of the cemetery association is placed at more than \$5,000,000. Judge John C. Brown filed a brief concurring in the opinion, in which he says: "While I am sure the ordinance prohibiting all future burials in Union Cemetery should be enjoined, there is a state of affairs which would justify an ordinance to abate all pools of water and provide storm sewers to carry surface water and sewage from the graves to the northern boundary of the property, to keep all graves leveled up to the surface and to require all future interments to be made six feet below the natural surface of the ground."

Editorial Notes

There are seven spruces in the United States. Four are confined to the West, two to the East, while one, white spruce, has a continent-wide distribution.

In proportion to its weight California redwood is the strongest conifer so far tested at the United States forest products laboratory. This strength is due to its long wood fibers.

Experiments with various chemical extinguishers for fighting national forest fires have not been very successful. The unlimited supply of oxygen in the open, forest officers say, tends to neutralize the effect of the chemicals.

Of the two million trees to be planted on the national forests of Montana and northern Idaho during the present fiscal year, one-half have been set out this fall and the rest will be put in next spring.

There is a flourishing forest school in the Philippines, and twenty-eight men were graduated with the class of 1913.

The so-called Scotch pine is the principal tree in the Prussian forests. Its wood is much like that of the Western yellow pine of the United States.

A growing scarcity of willow, generally used for wooden shoes in Europe, is leading to an adoption of poplar.

The average area administered by a ranger on the federal forests of the United States is about 100,000 acres. In Germany the area administered by a man of equivalent rank is about 700 acres.

Complaining that the Oakwood Cemetery Association, Joliet, Ill., has gone beyond the scope of its authority when it insists that only the special vault manufactured by it shall be used in the cemetery, L. G. Hutson has filed a bill for an injunction to restrain the association from enforcing this ruling. Hutson is planning to disinter the body of his father and to place it in a concrete vault. The by-laws of the association provide that the sexton shall have the power to designate what sort of vault shall be used.

John B. Sutton, who owns a tract of 194 acres of valuable land just east of the village of Findlay, Ill., has filed a petition for an injunction in the Shelby County Circuit Court, asking that the Findlay Cemetery Association be restrained from underdraining the new cemetery in such manner that the drainage will be turned into the Everman branch, or ditch, which Mr. Sutton alleges is a natural drainage ditch and passes through his land, furnishing water for his horses, cattle, hogs and other stock.



PERGOLA ENTRANCE TO GREENWOOD CEMETERY, KNOXVILLE, TENN.
Hare & Hare, Landscape Archts.

THEN and NOW IN KNOXVILLE'S MODERN CEMETERY



CLOSE VIEW OF PERGOLA AT CENTER OF ENTRANCE.

Memory recalls the "graveyard" of days gone by, when graves were lost beneath the tangled growth of vines, shrubs, trees and weeds, but that day has gone by. Today the cemetery that does not keep all graves green does not have the patronage of those who have dear ones to lay away.

Even perpetual care is not all that is asked for or deserved in our time, for the people expect that the cemetery be not only cared for, but that within its boundary lines nature is to be improved. A little touch here and there makes earth look better everywhere, and the cemetery must have its share. So the cemetery becomes a "burial park," with features that turn sorrow into joy and cause the pangs of death to seem less real.

Greenwood Cemetery, Knoxville, Tenn., has made greater strides toward the ideal than has any Southern cemetery of which we know. It is our pleasure to show in photo reproduction the actual attainments in these grounds.

In 1905, under the direction of a landscape architect (S. J. Hare, of the firm of

Hare & Hare, Kansas City, Mo.), Greenwood began to clean up the undergrowth, build roads, put up fences, build an entrance, plant rare and native trees and shrubs, with flowers of beauty, all arranged under a well-studied plan. Today words could not convey to the readers just what has been accomplished, so these pictures are used to give a better idea of the results.

The entrance, with its gateway, vine-covered pergola and ornamental planting, is characteristic of Mr. Hare's ideal entrance for cemeteries. "The first impression is the lasting one," he repeats, and this first impression should express rest, protection, beauty. The gateway at Greenwood expresses all these. The entrance is constructed of beautiful Tennessee marble. The office, not yet built, will stand



GRASS WALK AND BORDER PLANTING IN GREENWOOD CEMETERY.

just inside the gateway, directly back of the pergola.

The road system, paved with crushed Tennessee marble, leads to the various sections and was planned to occupy the low ground with the lot sections rising on either side.

The burial sections are arranged with open lawns and groups of shrubs, trees, and evergreens, so as to form backgrounds for monumental work and also to separate the monuments into groups, with the proper setting for each group. With head markers nearly level with the lawn and grave mounds not more than two inches high, the burial sections here are ideal.

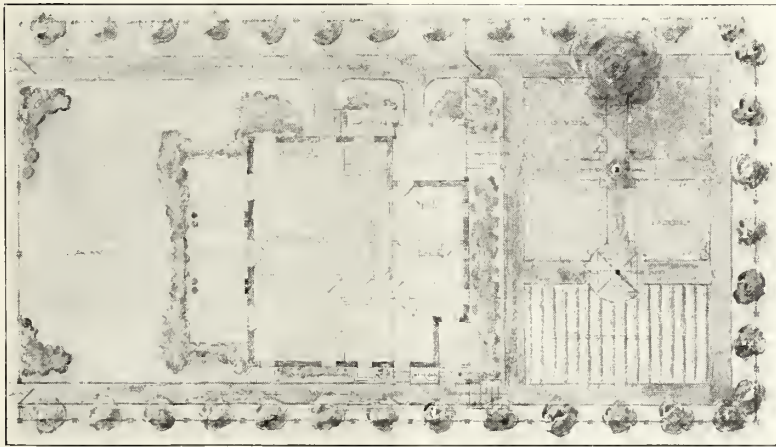
Words or photographs fall short of conveying to our readers the fragrance of the Southern flora, and color photography has not yet been perfected enough to give one an idea of the formal garden in Greenwood Cemetery, where the rare things from historic homes of American citizens shall live on and keep alive the memory of men of worth and recall homes where American history was made. The formal garden is a feature that attracts the visitor, soothes the sorrowing and adds beauty to the grounds.

The sun dial and other features add to the attraction at Greenwood. The monumental work is of a high grade and the rare things of the floral world are grow-

ing there, so Greenwood is becoming to the South what Spring Grove of Cincinnati, Graceland of Chicago, and Mount Auburn of Cambridge have been in days past, the forerunner of better and more beautiful cemeteries throughout the South.

The women of the Flower Association of Greenwood Cemetery have undertaken to raise money for the new memorial chapel to be built in the cemetery grounds. The plan for building a memorial chapel by gifts was suggested by a friend who has given a substantial sum as a nucleus to the fund. It has been decided that a memorial book be kept, wherein names of the giver and that of the one in whose memory given be recorded.

GETTING THE MOST OUT OF THE SUBURBAN LOT



PLAN NO. 1.

Compactness strikes the keynote for the best arrangement of the small suburban lot in order that the commuter may get the most fun out of it.

To one accustomed to the studying out of these little problems of landscape architecture it is amazing to find how interesting they become when approached from the point of view of the designer rather than that of the gardener; for important as the careful and attractive planting of the lot with hardy trees, shrubs and flowers may be, it is to be remembered that these should not be considered the all-in-all of "laying out" the home grounds, but rather as the final decoration of the design. In other words, the problem of planting is quite similar to that of interior decoration, and no matter how artistically the grounds are planted, nothing makes up for the fundamental defects of inconvenient, unsuitable planning or design. In fact, it may be said that the smaller the domain the more important it is to place due stress upon intelligent planning, for on the broad estate defects of design may often be largely overcome, or at least minimized or hidden, by the clever arrangement of planting; but on the typical suburban lot defective planning—being always under the eye—is a constant source of inconvenience and annoyance.

As illustrations of what may be termed "compact design," as applied to these small problems, the three plans that accompany this article, examples of the work of S. P. Negus, the Boston landscape architect, may profitably be studied.

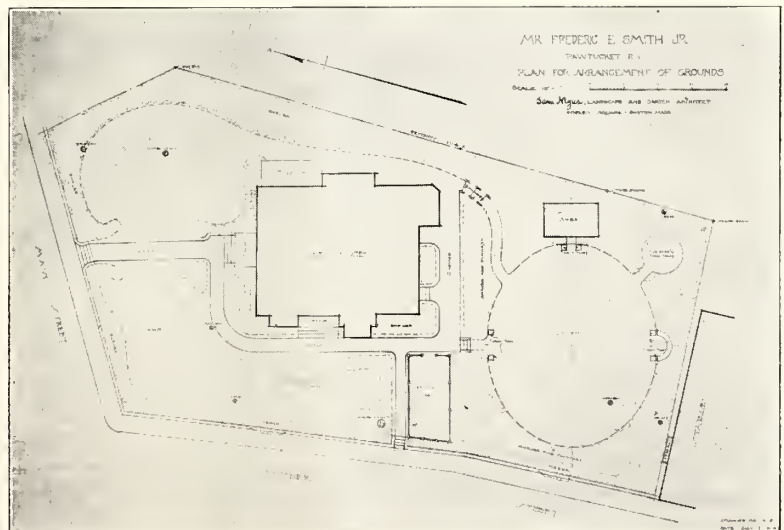
Plan No. 1 shows a small rectangular lot containing about 9,000 square feet, closely hemmed in by adjoining properties and sloping about three feet from front to

rear. The first thing done was to enclose the property with a simple though well designed white wooden picket fence in order to secure a decent degree of privacy and make a real home plot of what would otherwise be merely a house lot. The enframing idea is further accentuated by a row of Lombardy poplars just inside the fence on three sides.

The brick entrance walk comes in along the living side of the house, while a somewhat narrower path skirts the service side. The former leads to the entrance, on through a lattice screen to a seat under a tree at the end of a tiny square flower garden with a sun-dial in the middle, while the latter reaches the rear of the lot via the kitchen entrance and servants' porch.

The remainder of the rear of the lot is given over to a small plot for vegetables, while a circular space in brick is provided for a removable clothes reel.

All the walks are of brick. Little shrub planting is attempted further than the massing of low groups around the house walls. In this way a small but unbroken lawn space is secured as foreground for the house.



PLAN NO. 2.

Turning now to Plan No. 2, we find the grounds occupying about 16,000 square feet and raised above the street in two lev-

above the sidewalk by low retaining walls with balustraded fence on top.

As in the earlier example, the service

area—always good practice where space allows.

The upper level is given over to an oval lawn of sufficient size for croquet and completely screened in by a tall border of shrubs and flowers to insure privacy. A summer house, seat and children's sand court are interesting features.

Beside the heavy planting around the upper lawn, a wide shrub border separates the lot from the adjoining property, with narrower borders and hedge back of the street boundaries, and the usual low shrub planting at the base of the house walls.

Plan No. 3 shows another corner lot, having an area of approximately 11,000 square feet, and introducing the new element of a driveway and court yard or turn in connection with a garage. Entrance walk and service path are again kept separate, and again we have the lattice-inclosed drying space, a feature infinitely more important and useful than the very much overdone pergola.

If this article influences but one suburbanite to build a well designed lattice screen around his drying yard, instead of the oftentimes inappropriate pergola, it will have accomplished its mission!



PLAN NO. 3.

els—the first or house level, two and one-half feet above the sidewalk; the second or lawn level, in the rear, about two feet higher than the former, both supported

path is separate from the main entrance walk, although in this case joined by a walk leading to a side porch. The drying yard is given a separate, lattice-enclosed

LANDSCAPE GARDENING AT ILLINOIS UNIVERSITY

Courses of landscape gardening have been offered by the Department of Horticulture in the University of Illinois since 1868. A definitely prescribed professional course leading to the degree of B. S. in landscape gardening was instituted in 1909 and the work is conducted as a division of the Department of Horticulture.

The course combines with the professional work in landscape gardening the essentials of a liberal education aiming to give the student a broader foundation for his future work as a professional landscape architect.

Landscape gardening is regarded as one of the arts of design and the aesthetic side of the profession is emphasized throughout the course, the practice in design being given the most important place in the study list. The work in design is started in the freshman year, with courses in the Department of Architecture, and continues through the first semester of the sophomore year, when the work in landscape design is begun. The first course takes up the more simple problems in landscape gardening and special attention is given to the form, location and scale of planting areas. The more complicated problems, such as country estates, playgrounds, parks and garden design, are taken up in the junior and senior courses in design. Sketch problems are given from time to time to develop rapidity of thought and originality and quick methods of presentation. The problems are judged and "mentions" awarded, a grade of 85 per cent

being necessary for a "mention," 90 per cent for a "second mention," and 95 per cent or above for a "first mention."

Throughout the four years emphasis is laid on the actual carrying out of plans in the field, and during the senior year a special course is given in which the students are given practical work in the practice of the profession of landscape gardening. For this work there is available a tract of land of several acres and problems are worked out in plant design and landscape construction. For the purpose of studying this phase of the work inspection trips are made to the larger cities from time to time.

The Division of Landscape Gardening occupies rooms on the third floor of the Agricultural building, there being two drafting rooms, a herbarium and seminar room, library and study rooms, lecture rooms and offices. The library contains an excellent collection of books relating especially to the subject of landscape gardening, photographs of examples of both foreign and American landscape work, drawings and blueprints from representative landscape offices, and the leading periodicals are kept on the reading tables.

The requirements for admission to the four-year professional course are the same as those for the College of Agriculture.

The following extracts from the description of courses as given in the Division of Landscape Gardening and listed under Horticulture in the University Register will be of interest:

Landscape Gardening; lectures with reference reading: The object of this course is to give the student a broad knowledge of the principles of landscape and garden design. The various types of landscape and garden design are briefly considered, and the discussion of theory in application to specific problems is taken up in the lectures. The common plants used in landscape design indigenous to Illinois are studied on the field trips. During the last half of the semester the field trips are omitted and the time devoted to single problems in landscape design with planting schemes are taken up.

10b Landscape Design. (Elementary course.) Drafting, field trips, assigned readings, reports, and occasional lectures on the problem in hand: This course consists in the working out of simple problems in landscape design. Actual problems based on paced and measured surveys of local examples are given out to be solved by the students under the direction of the instructors. The completed designs are due on a certain date and the drawings are judged on their comparative merits by a committee. Frequent trips are made to study the existing conditions of the problem under consideration, and criticisms before the class are given from time to time. The working out of sketches in elevation, writing of reports, and suggestions for planting schemes are required for several of the problems.

23a Landscape Design (Second course.) Drafting, field trips, assigned readings, reports, and occasional lectures. This course takes up the more complicated problems in landscape design, such as country estates, playgrounds, small parks, etc. The problems are based on topographic surveys taken in the vicinity of the University.

24a Trees and Shrubs. Lectures and reference readings, field trips; two lectures and one field trip per week. The object of this course is to familiarize the student with the plant material important in landscape gardening. Special attention is given to the landscape value of each particular plant as regards such practical considerations as adaptability to soil and situation, and its use in plant composition.

25a Advanced Landscape Design. Drafting, field trips, assigned readings, reports, and occasional lectures. Nine hours drafting per week. This course consists in working out more complicated problems in landscape design, such as the preparation of plans for a country park, cemetery design,

country estate, etc. During the second semester a complete set of plans including a sketch plan, general plan report, detailed study of architectural features, grading plan, planting plan, set of specifications, and estimate of cost will be worked out as a major problem.

26a Planting Design. Planting plans, conferences, library research, drafting. One conference and six hours drawing per week. The object of this course is to give the students practice in plant composition and arrangement. The planting plans are based on the design problems worked out by the student in 10b and 23a.

27a Landscape Practice. Principles of construction. The preparation of construction drawings, such as grading plans, working drawings, specifications, and reports. The instruction in this course includes interpretation of topographic maps and their relation to landscape design, calculation of cut and fill, and quantities of material and construction.

27b Landscape Practice. Principles of construction. The preparation of construction drawings, such as grading plans, working drawings, specifications, and reports. Lectures.

28 Exotics. Temporary decorative plants used in landscape gardening. Lectures, planting plans, and field trips. A study is made of the decorative plants used in landscape gardening that require protection during the winter, or renewal every

year, the use of bedding plants, and the half hardy trees, shrubs, and perennials is given special attention.

35a Field Practice in Landscape Gardening. Lectures, field work, reports. Actual practice in carrying out landscape plans in the field; grading, planting, of roads and walks, planting and care of trees, shrubs and garden flowers. The object of this course is to give the student preliminary training in the actual working out of landscape plans in the field. For this work there is available a plot of ground of several acres that will be used for this work. In the engineering the various types of road and walk construction will be taken up, the laying out of free-hand curves, and the setting of grade stakes. The planting work will consist in the laying out of shrub areas, preparation of the soil, and the planting and care of trees, shrubs, and garden flowers. The question of proper pruning, spraying, will also be taken up.

35b Field Practice in Landscape Gardening. Lectures, field work, reports. Actual practice in carrying out landscape plans in the field; grading, planting, building of roads, and walks, planting and care of trees, shrubs, and garden flowers.

Following are the members of the faculty in the Department of Horticulture:

Joseph Cullen Blair, M. S. A., Chief of

Department; Charles Mulford Robinson, A. M., Professor of Civic Design; Ralph Rodney Root, M. L. A., Assistant Professor of Landscape Gardening, in charge of the division; Wilhelm Miller, Assistant Professor of Landscape Horticulture; F. A. Cushing Smith, B. S., Instructor, Landscape Design; H. W. Peasley, B. Arch., Instructor, Landscape Design; R. W. Hoffman, B. S., Assistant, Landscape Gardening.

During the year prominent professional men in landscape gardening and city planning give lectures before the students pertinent to landscape architecture and city planning. For 1912-1913 lectures were given by: W. N. Rudd, President, Mount Greenwood Cemetery Association, Morgan Park, Ill.; George Burnap, Official Landscape Architect, Washington, D. C.; Prof. J. S. Pray, Harvard University.

MODERN CEMETERIES OF GREAT GRANITE TOWN



AT TOP OF HILLSIDE DRIVE IN HOPE CEMETERY.

Barre, Vermont, famous as the largest granite center in the world, is one of the places where the citizens take especial pride in the cemeteries. This is shown by the fact that recently thousands of dollars has been spent in improving and beautifying the cemeteries, and this work is to continue until the burying places here shall be second to no place of the same size in the United States.

Barre has two cemeteries which belong to the city—Elmwood and Hope. Part of the former is the old burying ground founded about one hundred and twenty years ago, when the name of the village, which was originally Wildersbury, was changed to Barre.

Hope is a modern cemetery occupying about twenty-five acres. It was established twenty years ago, and from its excellent natural location offers great possibilities in the way of future development.

Situated in the northeasterly part of the city, just at the outskirts, and occupying an elevation of nearly 100 feet above

the surrounding parts, its topographical features are such as to constitute the place an ideal burying ground. The main approach, which is about one-fourth of a mile long, has been laid out into a magnificent winding avenue, with cobbled gutters to take care of the water flow. The wooded parts upon either side have been cleared of underbrush and young trees planted, giving the place a grove-like appearance and much enhancing the beauty of this elegant driveway. At intervals along the grassy slopes benches have been installed, upon which the wayfarer can rest and absorb the sylvan scene around him.

This cemetery is finely laid out into lots of convenient size, with broad graveled



SUPERINTENDENT HANTON SHOWING COMMISSIONER MARR THE SCENERY.

driveways, and a multitude of little paths which obviate the necessity of crossing the grass to reach a given point.

A noticeable feature in the cemetery lawn adopted here by Superintendent Alex Hanton and the commissioners is the elimination of the mound idea, a feature of many modern cemeteries that adds to the facility with which the lawns can be cared for.

Curbing, coping and posts above the level of the lot are all under interdict in Barre cemeteries, although it will take some time to get rid of the cumbersome looking structures of this nature which were installed in days when taste in landscape adornment had not reached a very high standard of development.

In the scheme for cemetery betterment Elmwood came in for its due share. An unsightly hedge and ramshackle stone fence have been removed from the Washington and Hill street boundaries, and the stretch of wooded land between these streets and the cemetery has been regraded and transformed into a park, which will be much appreciated as an addition to the city's breathing spaces.

Upon the westerly side of this cemetery, too, a park has been laid out, and through the aid of the Barre Civic Federation seats have been placed and several ornamental shelters erected, all of which will add materially to the convenience of visitors as well as to the fine appearance of the surroundings.

As already mentioned, part of Elmwood—the easterly side—is the old burying ground of the early settlers, and here the inscriptions upon the ancient slabs and tablets indicate the graves of many of the pioneers in the granite industry of Barre, and likewise those who took a prominent part in the town's development and in a public way served their fellow-townsmen in their day and generation.

Upon the newer and what is now the main part of the cemetery—which, by the way, covers about ten acres—there are three fountains supplied by city water,

which play throughout the summer season, and shade is supplied by a fine assortment of maple, birch, elm and various other kinds of trees.

The Reynolds and Bruce memorials are fine examples of the sarcophagus type. Mr. Reynolds was one of Barre's substantial merchants, while Alex E. Bruce was



DRIVE IN BARRE'S MODERN CEMETERY.

The average of yearly interments in Barre cemeteries is about one hundred and fifty. Sunday funerals are permitted, although not encouraged, as there is a decided tendency to take undue advantage of this privilege.

As might be expected in a granite center like Barre, there are in the cemeteries some fine monuments and other examples of the granite worker's skill. Prominent among these in Elmwood is the Bolster monument, erected in 1910 in memory of Levi Bolster, once a large real estate owner.

Another striking monument is that which marks the last resting place of William Barclay, for many years a well-known granite manufacturer in Barre and three times mayor of the city.

The Dr. Jackson monument is of the rustic or rock-face type and consists of a massive rustic cross, with an angel in front with outspread wings, all cut from one block of granite and resting upon two large bases.

owner of one of the high-grade dark quarries on Millstone Hill.

Among other notable monuments are the Smith and Morse obelisks, the Keith, Martin, Fisher, Averill, Wheelock and two Whitcomb memorials, the latter six having granite figures surmounting them.

In Hope Cemetery there is likewise some skilful work in granite, perhaps the most noticeable being the well-known Corti monument, which is unique in its way. Elia Corti, whose likeness is faithfully reproduced in the granite figure, is the man who carved the panels of the famous Burns monument, which occupies a splendid site overlooking City Square in Barre and is pointed out to visitors as a specimen of Barre granite and workmanship.

Visitors to Barre would be well repaid for looking over the cemeteries, and the genial and progressive superintendent, Alex Hanton, is always ready to welcome visitors to see his domains, in which he takes great pride and interest.

JAMES MCADAM.

PITTOSPORUM TREES OF OLD ST. AUGUSTINE

Pittosporums are nowhere in the United States common enough to become familiar to the public, although used extensively in some parts of the South, notably New Orleans, where they are seen exclusively in the form of clipped hedges and are probably either *P. tenuifolium* or *P. undulatum*.

In St. Augustine, on the contrary, where clipped hedges are unused except on the grounds of the large hotels, pencil cedar has served that purpose since common privet was abandoned because of the ravages of the white fly, and the Pittosporums seen rank as trees in size and appear to be limited to *P. Tobira* and its variegated

form. The terminal leaves of both varieties are in rosettes, nearly every one of which is finished in the flowering season with a sessile umbel of pure white blossoms of delicious fragrance faintly suggestive, in a tropical way, of trailing arbutus.

Handsome specimens of both are found in the city and frequently elicit the admiration and inquiries of visitors. Practically no one knows what they are, and when told, even repeatedly, find curious difficulty in mastering and remembering the name.

Just why mind or memory should balk at Pittosporum while peaceably accepting

charmcase, taupe and chicane adds another to the unsolved mysteries. The fact, however, remains and led to the discovery that the name is quite natural and more reasonable than many. It is from the Greek, means pitch seed, and was bestowed in allusion to the resinous coating of the seeds.

The tropical storm of October, 1910, treated the vegetation of St. Augustine to a salt foot bath which proved the Waterloo (no pun intended) of a multitude of choice roses and other plants, but seems to have had little or no effect on the Pittosporums; but the salt spray, which was dashed high as the tidal waves struck and

passed over the old sea wall, was carried over buildings by the fierce hurricane, drenched the foliage of those not protected by buildings and killed them.

The specimen *Pittosporums* shown here include views of the largest, oldest and most shapely *P. Tobira* or Japanese *Pittosporum* and the best *P. Tobira*, var. *variegatum*, not only in the city, but that the writer has yet seen.

The variegated one stands near the wall on the west side of the charming central court or patio of a large hotel, is believed to have been planted in 1887 or 1888, and is twelve or fifteen feet in height, with a spread north and south of about the same distance. Its rather light green leaves are distinctly outlined by a creamy border, the coloring being both agreeable and effective.

The larger tree of the type was planted at the close of the Civil War, is about thirty feet high (more rather than less) and would measure still more than that



PITTOSPORUM TOBIRA VAR. VARIEGATUM, IN FLORIDA.
Photo by Mrs. Seavey.

through its umbrella-shaped head had it not been cruelly cut out on one side to satisfy the prejudices of a neighbor. The trunk is forty-seven inches in circumference six inches about the ground, and around the curious knot or excrescence it measures sixty-one and a half inches. The largest of the three main branches is thirty inches around.

The natural habit of growth of this variety, as shown by a number of large specimens examined, is to send out a cluster of trunks at the ground, and this one exception, seen in the photograph, is single-trunked for a short distance because in its early youth all others were cut away to produce this chosen form.

One side of the trunk is badly decayed, due, from appearances, to the wounds of the wholesale pruning.

This picturesquely beautiful tree is believed to be the oldest as well as the only single-trunk *Pittosporum* tree in the country. It stands in an old garden, beside an old house of Spanish type, overshadowing an ancient wall of old-world aspect, and the combined oldness resolves itself into a quant picture that constitutes the chief attraction of the ancient thoroughfare called Charlotte street.

When in flower this tree is a snowdrift of bloom—the only kind ever seen in St. Augustine—and its perfume pervades the entire neighborhood, inviting a droning host of bees and a myriad of fluttering butterflies. They hover continuously, seeming to realize the evanescent character of the feast. It is, in fact, a fleeting show—come and gone in a week or ten days.

FRANCES COPLEY SEAVEY.



THE CHARLOTTE ST. TREE.

TRANSFORMING THE VILLAGE CEMETERY

A Story of One Woman's Achievement.

Bordering the banks of the Kalamazoo River at a certain point in its course through southern Michigan lies a country village. In many respects this little burg differs not at all from hundreds of others of equal size in this commonwealth.

Time was when the village cemetery was an exact counterpart of the burial plots so often found in rural communities. Headstones were tottering or had fallen prone into the tall grass. Here was a terrace and there a hollow, with many an unsightly mound of earth left to be covered over with weeds and brambles. Foundations were sunken and awry. The trees had been unacquainted with the pruner's shears for years and in places their low sweeping branches had killed out the grass. In short, all conditions combined to present a generally unkempt appearance. To crown it all the sexton, whose duties took him to the cemetery semi-occasionally, had been allowed to use the most conspicuous corner for a rubbish dump-ground. Indeed, one could easily have

mistaken the place for a portion of the Deserted Village of Goldsmith's tale.

But, fortunately, there dwelt here a public spirited woman who not only had ideals but good, practical ideas.

The neglected burial spot appealed to her as a field of endeavor and upon its transformation she bent her energies. She had won the interest and hearty co-operation of her husband and a few loyal friends which made the task of interesting others in her plans more easy.

An incentive to action was furnished in the knowledge that they would be but continuing the work of a cemetery association which has been organized in 1839 and reorganized and enlarged in 1868 by a number of the sturdy farmer pioneers of the vicinity, but which, upon their deaths, had gradually become non-existent so far as any practical work was concerned, whereupon the cemetery had fallen into the condition of disorder previously mentioned.

However, the memory of the good work

of these early settlers proved an inspiration to those of the present day, and, filled with a desire to carry on this work until some definite results should be attained, our friends raised by subscription a considerable sum for the straightening and resetting of tombstones on permanent foundations and the grading of lots. More than sixty headstones were leaning, fallen or broken when the work began. Indeed, one marble slab was found fully six inches underground, with a well-sodded turf covering the soil above it. Its discovery was due entirely to one of the older residents of the village whose home when a child adjoined the cemetery and who insisted that a stone had stood upon that spot.

The work was hard and discouraging at first, but from the beginning a distinct plan was kept in mind to carry out the most approved methods of modern cemeteries whenever consent to do so was granted by lot owners. To a great extent grades and terraces were done away with, uneven surfaces were smoothed, trees were

pruned or cut out entirely where it seemed best, and after some weeks of strenuous labor a decidedly changed appearance in the cemetery rewarded their efforts.

Realizing that order and system are essential to success in all business affairs, the workers felt the need of an organization which would be properly recognized as a corporate body. While the old organization had served a useful purpose, the demand was for one that should be legally stronger, and that with business con-

curities as the Board of Trustees shall determine," and is now invested in a bond bearing 4 per cent interest, together with an accumulating amount in the savings bank at 3 per cent.

A deposit of \$50 by cash or note is required for perpetual care of lots containing 480 square feet, and on lots of greater or less area the sum required is in proportion. As the interest on these several sums is deemed necessary for their proper maintenance a by-law of the association is

each year's interest on the Cash Memorial Trust Fund, interest on memorial notes and assessments for annual care. From this fund is paid all labor for lawn mowing and otherwise improving lots thus provided for.

To obviate the danger of tangled business problems arising, a complete system of bookkeeping is demanded that shall show in black and white at all times the condition of financial affairs. This has been found indispensable in connection with the work of the association, and the books kept by both clerk and treasurer aim to be a complete record of all transactions and their inspection is invited.

The annual meeting of stockholders is held on the second Monday in May. The ownership of a lot or right of burial entitles the holder to one vote, which may be cast in person or by proxy. One vote is also granted upon lots owned by several heirs, subject to the same conditions. During the past year ninety-five lots have been cared for and much work of a general nature has been done.

An annual event for the past three years, when so much needed to be done, has been a "Work Day," held about the last of May, before Memorial Day if weather conditions permitted.

On these days a goodly company assembled, armed with scythes, lawn mowers, rakes, spades, shovels, wheelbarrows and saws, and from morning until sundown the slogan was: "Work, for the Night is Coming!"

At noon a bountiful pot-luck dinner was served by the ladies in an adjoining house which the owner kindly opened for the occasion.

All of this work was freely given and resulted in a considerable amount remaining in the treasury to be expended in other improvements.

The first Work Day was purely an experiment, though our dauntless Lady of Achievement did not doubt its success for one moment. There were many, however, who did, and it was amusing to see the half-hearted manner in which they entered upon the work changed to whole-souled enthusiasm as the day advanced. Indeed, to paraphrase a familiar quotation, "Those who came to scoff remained to work."

Members of the association are working at present for a chapel and receiving vault. Many are brought back to this cemetery who have no kin living in the village. If services are held at all, they must be in the church a half mile distant. Plans are already on foot for the realization of this dream of a chapel and the fulfillment will come, we doubt not, in the near future, for those interested are full of zeal and are working hard toward the goal.

Indeed, "Hard Work" has been the watchword of the faithful.



CLEANED UP AS A RESULT OF A CITIZENS' "WORK DAY" IN THE CEMETERY.

ducted under state laws might become a helpful factor in the wide movement for cemetery improvement.

Accordingly, early steps were taken toward incorporation of the old association, and after a number of weeks this was accomplished under Michigan statute, Act No. 87, of the year 1855, with amendments thereto, the lot owner or owners of rights of burial being the stockholders in the new association.

Then followed the election of a board of nine trustees and at their first meeting officers were elected, by-laws adopted and a Memorial Trust Fund established for perpetual care of lots. The nucleus of this fund was a bequest of \$75 from a lady who had relatives buried there.

From a small beginning the Memorial Trust Fund has already grown to considerable proportions. At the present time it consists of more than \$800 in money and \$1,900 in memorial notes.

One of the members conceived the idea of notes for this fund being accepted by the association. The interest, not less than 3 per cent, due May 1, annually, cares for the lot on which note is given. A note may be paid at any convenient time or left as a claim against one's estate. The plan has worked out most satisfactorily and the notes held by the association are considered among its most valuable assets. By this method the corporation is relieved of the care of the money until such time as the notes are paid in.

The cash Memorial Trust Fund is to be invested "in such safe and productive se-

curities as the Board of Trustees shall determine," and is now invested in a bond bearing 4 per cent interest, together with an accumulating amount in the savings bank at 3 per cent.

Lots outside the Memorial Trust Fund are cared for by annual assessments, due in advance, May 1 of each year, and as long as assessments are paid there is no difference in care given.

The amount of the assessment is computed at 3 per cent on the sum that would be necessary to deposit for perpetual care of the lot, except that no lot is assessed less than 75 cents.

Lots on which assessments are not paid are mown annually twice a year, the money for the purpose taken from the General Expense Fund.

A provision of the corporation law is that any surplus not needed for the care of a contributor's lot may be expended upon ground reserved from sale, but not upon any other person's lot. Many improvements will be possible from time to time through the increase of this surplus.

The moneys of the association are divided into three funds, designated as Memorial Trust Fund, General Expense Fund, and Care Fund. The first has already been explained. The second fund is reimbursed from the sale of lots and such profit as may come from foundation work, which work the association performs for the individual lot owners at a stipulated price. To the third fund, the Care or Working Fund, is transferred

OFFICIAL COMMUNICATIONS

H. S. RICHARDS, Chicago, President



AND CONTRIBUTIONS

J. J. LEVISON, Brooklyn, N.Y., Sec.-Treas.

THE ASSOCIATION QUESTION BOX

Tree Labels.

In reply to a recent inquiry on tree labels, the labels I use are cast labels, giving first the common name, then the Latin name, the common name being slightly larger letters. They were made for us by the New York Stencil Works, to our design and order. If you will write to Mr. Thomas Jones, New York Stencil Works, 100 Nassau street, New York City, he will undoubtedly be glad to quote you prices on these labels. They are better than any other label that I know of, because they are practically indestructible, are very legible, and in the end cheaper than painted zinc labels, of which we use a great many thousands on our animal cages. These painted zinc labels we cut out of No. 9 zinc in various sizes, wash with diluted acetic acid, then with clean water, and then given three coats of white lead ground color tinted sage green, upon which the legend is then painted in plain script letters with drop black. When this is thoroughly dry the label is given a couple of coats of the best varnish we can buy. These labels last very well indoors, but I don't like them for permanent outdoor labels.

The enameled tree labels are very handsome, but just as expensive as the cast labels and more vulnerable. They can be had from Benfield & Milne, 92 Fulton street, New York City; Ingram-Richardson Co., 100 William street, New York City; Enameled Iron Sign Co., 29 Murray street, New York City.

I forgot to say that I paint the cast labels with a black asphaltic paint, and when this is thoroughly dry, sandpaper off the raised portions of the labels, and then run them over with bathtub enamel and a common inking roller such as printers use.

H. W. MERKEL,

Chief Forester and Constructor, New York Zoological Park.
New York City.

TREES AND SHRUBS OF THE COLORADO ROCKIES.

Address before the Denver Convention of the American Association of Park Superintendents, by John Berry, Denver, Colo.

Probably there is no other branch of our vocation to which is given so little attention as that of the cultivation of the indigenous vegetation of the community in which we live. This, through the absence of such material in our parks throughout the country (and this location is no exception) has suggested to me the advisa-

Gas Injury to Trees.

"We have several cases here of trees dying in large numbers, and whether the cause is attributable to gas which was escaping in the place where the trees die we are unable to say. The gas company claims to be able to furnish expert testimony from chemists that the gas would not hurt the trees. We would be pleased if you could give us any definite information on this subject."

* * *

Illuminating gas escaping around the roots of a tree injures the tree. The gas dissolves in the soil moisture and the roots absorb it in that condition. If the leakage is small, from two to three cubic feet a day, the injury may be slight and would make itself apparent by the presence of large quantities of dead branches.* But where the discharge is heavy or where the gas has been leaking in small quantities for a protracted period, the entire tree will be killed and then there is no hope for its recovery. A tree affected by gas may be told by the drying and sudden falling of its foliage, and often by a deadened appearance of the bark. Various species of fungi in compact masses soon follow on the trunk of the tree. The sapwood becomes discolored and often emanates a peculiar characteristic odor. If the gas is still present in the soil it can be easily detected by this obnoxious odor. Thorough aeration of the soil will hasten the escape of the gas.

The distance over which gas will travel depends on the character of the soil. In gravelly soils it is said to travel as far as 2,000 feet, when the ground is frozen, and in heavier soils it is likely to be confined to smaller areas.

For further reference I would suggest that you consult reports of the Massachusetts Agricultural College.

J. J. LEVISON, Secretary.

there is one family of trees to which we should look with a sentiment of veneration and esteem. I refer to the Cottonwood family, and particularly to the variety known as *Populus Deltoides*. Perhaps there is no other tree that has done so much for the development of Western interests. To the pioneers it proved the oasis of the plains, and since the earliest settlement of this section of the West it has been a friend and protector to man and beast, and I am thoroughly convinced that if it had received but a small portion of the attention that other foreign subjects have had it would not have lost its prestige as the most valuable tree of our mountain and plain region.

Another and valuable type of the Cottonwood family is the *Populus Angustifolia*, a narrow leafed variety of sturdy and compact growth. This variety, if nursery grown, when young, will make a valuable tree for many purposes in park planting.

Populus Tremuloides, the Quaker Asp, is a tree that should receive more attention, as it livens up the landscape with its light bark and dainty foliage, which is almost continually in perpetual motion throughout the summer.

In the intermediate or dwarfer class of trees we have many varieties worthy of extensive culture. I will enumerate a few of the best:

Robinia, Neo-Mexicana, a dwarf pink Locust of graceful habit and free blooming qualities.

Acer Glabrum, known as the Water Maple, of graceful and bushy growth, small, handsome foliage and slight pendulous branches.

Acer Negundo, the common Box Elder, was extensively planted here by the early settlers, but in recent years has been totally discarded.

Alnus Viridis, a strong growing Alder with water-loving tendencies, with oval to heart-shaped serrate foliage and long, slender catkins.

Betula Occidentalis, the Western Black Birch, like the Alder, is found along the banks of streams and is very bushy and vigorous.

Crataegus Coloradensis is truly a Western Hawthorne. The flowers are not as fragrant as European varieties, but the fruit is quite large and showy.

Prunus Demissa, a slender growing Cherry of decided pendulous and graceful character.

Prunus Virginica, the Universal Choke-Cherry, is very profuse in this section.

Prunus Americana, the Wild Plum, is

bility of bringing to your attention the wealth of available material found in this section of the Rocky Mountains.

DECIDUOUS TREES.

In the matter of deciduous trees we are not overburdened, particularly in such varieties as are adapted to the aesthetic theories of present day requirements, but

also found extensively distributed throughout this country.

Corylus Rostrata, the Western Hazel, is another dwarf tree of considerable value.

SHRUBS.

In native shrubs which are adapted to many requirements of park planting we have an extensive collection. They are widely distributed throughout the mountain slopes, deep canyons and along the streams. What makes them extremely valuable is that they can be easily transferred from their native habitation to almost any position in park planting and increase in utility and beauty.

Rubus Deliciosus, the Rocky Mountain Timble Berry, is a shrub of valuable qualities. It is handsome in flower, foliage and dormancy. It is of bushy and spreading habit and bears a pure white rose-like blossom in great profusion. The fruit, which resembles the raspberry, is large and smooth, of a light purplish color and rather unpleasant to the taste.

Physocarpus Ramaleyi, a beautiful shrub of spirea-like habit. The stems are somewhat shredded like the Winebark; the flowers are in white and rounded terminal clusters; the seed vessels in the fall are very decorative with their reddish tinted ovaries backed up by a base of strong foliage. It flourishes along the rocky slopes of streams.

Physocarpus Torreyi is a much dwarfier form than the previous variety. It is well adapted for planting as a filler of undergrowth in large groups.

Holodiscus Discolor, the Mountain Spirea, of stoloniferous and branching habit. It soon becomes, under cultivation, a very strong shrub. Its long tomentose white panicles clothes the mountain sides with a snow-like appearance in midsummer, but soon changes to a creamy white as the trusses mature.

Jamasea Americana, a mountain shrub of upright growth, white fragrant flowers in short terminal panicles. The bark is of a strong silver gray color and oblong in form, decidedly glabrous on surface and tomentose underneath.

Oercocarpus Panifolia, known as the Mountain Mahogany. Extensive growth of this vigorous shrub is found on the foothill slopes of the mountain range at an elevation of six to seven thousand feet. It retains its dark foliage until late in the fall, and the terminal flowers or twisted aikens give the landscape a very pleasing effect.

Amelanchier Alnifolia, known here as the Mountain June Berry, closely resembles the shad bush of the New England states, only more dwarf in habit. It carries a round, healthy foliage of pleasing color and dark purple fruit which is pleasant to the palate.

Ribes, the wild currant and gooseberries, are numerous in variety as well as in

quantity. They are to be found from the rocky and sandy slopes of our foothills up to an elevation of eight or nine thousand feet, the most prominent variety in Aureum.

Setosum is a good species of the gooseberry, with dark, sweet fruit of good size.

Rhus Trilobata. This is entirely distinct from every form of Sumach. It is a vigorous and diffused branching type with decidedly procumbent habits. The foliage is strongly aromatic and crowned with flat clusters of flowers in bract form which develop into scaly catkins of a reddish brown color; very showy in the fall.

Shepherdia Argenta, the Buffalo Berry, an upright shrub with beautiful silver gray foliage; more showy than the Russian Olive; has scarlet berries of an acid flavor; not found north of the Divide, but quite numerous in the southern and interior sections of our mountains.

CONIFERA.

During the past quarter of a century or more I have made frequent trips through the canyons and over the mountains of this region and I have frequently been strongly impressed with the fact that only a comparatively small number of our Conifera are grown throughout the Eastern states. Although the general flora of the Rocky Mountains has been fairly well known to botanists for the best part of a century, and considering the fact that our Conifera can be successfully grown in all temperate zones, we find that only an occasional arboretum in this country or Europe contains a full list of the valuable Conifera of this region of the Rocky Mountains. Although a subject of this character should embrace a more detailed account, it is not my desire at this time to take up the valuable time of this convention by quoting an extensive list, but will merely enumerate a few of outstanding value and excellency.

Pinus Ponderosa, the Western Yellow Pine commonly called the Bull Pine, frequently attains a height of 300 feet. It is a long-needed foliage variety with thick, deep-furrowed brown bark.

Pinus Ponderosa, the Western Yellow type of the variety Ponderosa, and is frequently called the Rock Pine. In low elevations it is somewhat scrubby in character, but useful for mixed planting.

Pinus Flexilis, the Limber Pine or White Pine of the Rockies, is a light gray barked variety of ungainly growth, not of any great value as an ornamental tree, but a good mixer in dense planting for harmonizing in color.

Pinus Edules, the nut or Pinon Pine, is a low growing pine of ornamental character, found extensively at an elevation of six or eight thousand feet. It is very useful for planting on dry hillsides.

Picea Pungens, the Spruce family, is greatly diversified in this region. Of the

Pungens family there are many types, but always holding their conical form, for which they are much admired. *Glauca* is the Colorado Blue Spruce, but many of the green shades are extensively planted.

Picea Engelmanni is equally as handsome as Pungens in form and is more upright and pyramidal in growth; found in much higher altitudes and consequently a great conservator of snow.

Abies Concolor, the Balsam or White Fir of the Rockies, a very handsome evergreen, probably the most graceful of all our Conifera. Its silvery gray foliage is long and soft and its subdued color allows a more extensive range of planting without any clash in harmony of color.

Abies Douglasi is the most extensive family of evergreen represented in the mountains. It is very difficult to classify, as this evergreen seems to be an intermediate offspring between the Fir and Hemlock family; however, the Genus *Pseudotsuga* are a valuable class in themselves and valuable for extensive planting as wind-breaks as well as ornamental work. The foliage is soft and usually carried on long, graceful branches.

Juniperus Scopulorum is truly the Rocky Mountain Juniper. It is of beautiful conical form and steel blue color, much harder than *Communis* here.

Juniperus Alpina is found all over our mountains. It is of low, prostrate growth, and like *Scopulorum* shows a rich blue schene cast. It is extremely valuable for covering slopes, mounds and rockeries.

In conclusion, I would like to make it comprehensive that but few of our extensive collection of evergreens are of any great value as timber trees, although in the early settlement of this country most of the Pines and Spruces were extensively used in the many constructions of the period referred to; in fact, some of the varieties, particularly the Douglasi Spruce, were extensively used, as it was proven by actual test that the logs or plants of this variety possessed a resisting power equal to the White Oak under a direct tensile strain.

PERSONAL MENTION.

Hobart College, on the occasion of the installation of Lyman Pierson Powell as president, November 14, awarded the honorary degree of Doctor of Science to John Nolen, the well-known landscape architect, of Cambridge, Mass., who is a Bachelor of Philosophy of the University of Pennsylvania and Master of Arts of Harvard.

L. P. Jensen, the St. Louis landscape architect, has recently compiled a careful check-list of the medicinal plants of St. Louis and vicinity that was presented at a recent meeting of the St. Louis branch of the American Pharmacists' Association. The list is printed in full in the November issue of *Meyer Brothers' Druggist*, of St. Louis.

VARIED DUTIES of THE CEMETERY SUPERINTENDENT

*An address before the New England Cemetery Association, by
Leonard W. Ross, Superintendent of Cemeteries, Boston, Mass.*

The Century Dictionary says that a cemetery is "a place set apart for interments; a graveyard; specifically, a burial ground not attached to any church; a necropolis." Without doubt a satisfactory definition to the average mind, but who of us engaged in the active and practical care and administration of cemeteries will say that the real effect required of us in the discharge of our duties consists in any considerable degree in directing the actual excavation of the ground and the placing there of the remains of a deceased person, or even the physical preparation, care and adornment of the areas in question, necessary and important though this be? Not one of us, I venture to say.

But rather will you, I think, agree with me that our deepest thought and greatest anxieties are given to the financial and managerial questions. While the family affairs, characteristics and conditions of mind of our lot owners require a degree of skill, thought, energy and diplomacy, which exhausts our bodies and minds, whitens our hair and furrows our brow.

Someone has irreverently said that we have much to do with skeletons. Yes, indeed we have; the skeleton of the family, many first brought to the light of day while endeavoring to determine who owns or who shall "boss" the cemetery lot; who shall or who shall not be buried therein, or removed therefrom, after the death of the original owner.

We must also sometimes explain why it is that each and every lot cannot have the grass cut and all other necessary care work done on the day before the family happen to visit the cemetery, accompanied by relatives from a distance who have been led to suppose that their lot was always in perfect condition, even though they had neglected to give the order for its care, and, of course, you must not say this in the presence of "Auntie" (who, by the way, is advancing in years and has most of the available cash in the family). Why in midsummer that grass is not green, although we have not been favored with a particle of atmospheric moisture for many weeks; why the grass does not show a luxurious growth under the trees; why you permitted the erection on an adjoining lot of such a monumental monstrosity, and you listen to an outpouring of words in ecstatic praise of their own "rock face" creation.

You are finally enlightened by the information that "out West, where I live, they do things better," and through it all you are supposed to give your whole attention to the cultivation of a smile upon your face which can be classed as "cherubic" and "apologetic," otherwise you are informed that "I shall certainly write to the

mayor," or to the chairman of your Board of Trustees, as the case may be, or it may be that they will decide that it is best to call attention to the alleged conditions of affairs through the medium of the newspapers.

At this point your foreman gives you the delightful information that one of the pair of new horses you purchased, and in which you feel such pride, "will not pull the hat off your head," and that the driver is "no good, anyhow." Never mind; you must be calm; go over to the new work, mount the seat, take the reins, talk to the horses and enjoy the sensation which comes of seeing them pull out the load in good shape, only to be met a few minutes later by your supervisor of interments, who informs you that some undertaker has forgotten to bring the burial permit (which he has probably not yet asked the Board of Health to issue), but promises to send it out in the morning. "Shall I let him by?" he asks. After an investigation of the facts you wearily answer, "Yes, but don't do it again."

The bell in the tower signals that you are wanted at the office. On reaching it you find a bereaved widower who wishes to purchase a two-grave lot, no more, "just a place to lay her, and another for me when I am called." You complete the sale, and if he is a young man you withdraw from sale the adjoining lot, well knowing that within a year or so he will, while on a visit to the cemetery, express his regret that he did not get a larger lot. You suddenly discover that the adjoining one is still unsold. He is greatly pleased and buys it. Soon after he will be accompanied on his periodical visits, which become less and less frequent, by another lady. Again the cherubic smile appears upon your face and you are so glad that the adjoining lot remained unsold for nearly two years.

You are pleased with yourself and fall to studying out some new improvement and estimating its cost, your door opens and you are confronted by a large, red-necked "manufacturer of artistic memorials" who bluntly asks why it is that he can't do more business at your cemetery, and tells you that "So-and-So" are getting most of the orders for new work. He accuses you of giving the other fellow tips and intimates that he can pay as large a commission for business sent his way as the other fellow is paying you. You indignantly deny the allegation and inform him that his presence and language are obtrusive and objectionable. Out he goes in a "huff" and you hear him mutter through his teeth that he will "see about this;" "I will have your scalp yet."

A few days later your chairman of

trustees very quietly asks you about it. You explain the matter fully, and he says: "All right, but be careful; you must keep these fellows quiet, for some day someone will believe what these fellows say about you."

And I might go on indefinitely enumerating our many trials, but of what use? We all have them and know by experience how to meet each problem as it presents itself to us. I am sure, however, that you will agree with me that a good cemetery superintendent needs to know more things than does a man engaged in any other line of activity with which we are familiar, and that while it has its troubles and annoyances, it also has many compensations and rewards, furnishing, as the position does, so many opportunities to render a service and to do a kindness to our fellow beings, and at a time when such service is highly appreciated and brings to us many life-long friends, which, after all, is the greatest reward we may get in this life.

And then think of the satisfaction derived from the effort expended as we take hold of a block of land in its crude state, hostile and rebellious, and watch it yielding day by day to our well-directed labors until it finally lays before us a beautiful area of undulating lawn, subdivided into lots; and we complete the picture by adding at suitable places the choice bits of trees and plants, and enjoy that greatest of life's pleasure, the delight of seeing things grow, and then the more sordid, material side as we figure the amount of money our corporation receives from its sale, many times the cost of purchase and development.

Suppose you are called upon to take charge of a cemetery, or several of them, in which there exists, as is frequently the case, a considerable area of "old part," and you start in to clean it up and put it in shape. My experience is that there is but one right way to go about it, and that is to make a clean, thorough job of it. If you cannot do it all the first season, do what you can in a complete manner. Pull out all surplus granite posts; that is, all but the four corner bounds, and store them away for some future use; pull up the corner ones and with a heavy hammer break off about one foot of the bottom end and reset them flush with the surface of the ground, so that lawn mowers may be run over them without striking; straighten and plumb monuments, tablets and grave markers. Remove surplus trees and overgrown shrubs, prune those left, dig or trench over the entire surface to the full loam depth, regrade, working out all possible terraces, sod edges and around monuments and trees, fertilize with any good commercial fer-

tilizer. If the loam is poor and hungry, work in a good, liberal quantity of well-rotted manure. Clean up, regrade and re-surface your avenues and paths and provide for surface drainage when necessary, then seed the whole with such grasses as you have found by experiment to be best adapted to the specific situation. The cost of such work is not great when compared with results obtained.

I am sure that some of you will ask, "What will you do with lots in such an area for which no care provision has been made? My answer is, "Do them just the same, because if you don't you will find that, left as they are now, they will seriously interfere not only with the proper grading of the whole tract, but if left uncared for they invariably produce weed seed that will inoculate those adjoining and eventually cause you as much work, or more work, than will be found necessary to put and keep them in order, in addition to the nullification of your efforts to keep the others in good order."

Then, again, we are not under a moral obligation to give a reasonable amount of care to any lot sold. Assuming that lots are now sold only with a perpetual care provision, the entire process of which is under our control, and we adjust it by investing a certain part of the purchase money in interest-bearing securities, the income of which bears the expense of the care of the particular lot in question, are those people who purchased their lots before we made such provision and conditions in any way to be blamed because the care of theirs has not been provided for? Would they not have been willing and glad to have had us lay aside a part of their purchase money for this purpose? Would they not have been willing to have paid more than they did for their lots if the purchase contract had carried with it a care provision? I feel sure they would. When you sum it all up, the situation as I see it is this:

Relatively a few years ago we learned from our experience that we ought to get more money for our lots and that we ought to lay aside a certain part of it for perpetual care. And ever since that time we have been trying to induce the owners of lots purchased prior to that time to endow their lots by the payment of a certain amount of money mutually agreed upon, varying in volume according to the opinion of the officials of the various cemeteries, and in this commendable effort we have generally met with success, which success in itself proves to my mind that they would have made this provision at the time of the original purchase, had we asked it. Understand me, I would not abate this effort in any degree, but we still have those with us who cannot now make this provision. In many instances the family has become extinct; in others, reverses have come and they cannot procure the money. It is true that in most

cases they only paid a fraction of the price we would now ask for the same lot, but they paid all we asked and would have paid us more if we had demanded it. Hence, if we used bad judgment and made a poor bargain for ourselves, I think we should take our medicine.

Let me ask, What will you do with these lots ultimately; care for them or not? They are on your hands and will never be moved away. That they are a burden to us and a menace to the welfare of our cemeteries and our lot owners, I think you will admit. Being a menace, I am sure that you will eventually care for them. My advice is, *do it now*. The satisfaction of pleasing those who are too poor to pay for it is great, and this is the class of people who most frequently visit the cemetery and who feel the loss of their dead most keenly. We have upon a large monument this sentiment, engraved upon a polished granite surface, "The best part of the record of every man's life is what he has done for others." The thought thus expressed is one we should cultivate and keep before us constantly while engaged in our work. Our doing for those who cannot do for themselves will bring to us our greatest reward. And besides, I firmly believe that if we remove from our cemeteries every foot of neglected, uncared for land we will make them so much more attractive than they would be if these areas are left undone that we will be able to sell our new land for a much higher price, so much higher that we will make money out of our efforts.

With advancing years of experience and observation I am becoming more and more convinced that the most attractive and desirable cemetery is the one that consists largely of well made and well kept lawns, avenues, paths and trees, with most, if not all, of the ornamental plantings placed in the public or administrative areas—

THE FRONT COVER ILLUSTRATION.

The photograph on the front cover of this issue, showing a partial view of Belmont Park, New York City, brings out very strikingly the attraction and protection added by a good, substantial iron fence. This fence is a design made by The Stewart Iron Works' Co., Cincinnati, Ohio, whose mechanical skill in this direction is attested in many fine fences throughout the country.

The iron fence in question is 7 feet 6 inches high and is constructed of $\frac{7}{8}$ -inch square pickets spaced 5 inches on centers. Rails are their special heavy patent four-rib channel, $2\frac{1}{2} \times \frac{7}{8}$ inches. Line posts, of which there is one at the end of each eight-foot panel of fence, are $1\frac{1}{4}$ inches square. The double entrance gates are hung to iron posts and are designed and constructed, of course, to conform in general specifications and style to the architecture of the fence.

The many reasons why parks should

that is, do not yourself or permit or encourage in your lot owners the planting of beds, graves or borders of lots or lot sections more than compelled to do. The old custom of weeping willows or syringas on the lots, with two beds of scarlet geraniums in the front border, is a thing of the past.

You will in any section find angles and spaces or unsold land into which you may properly and effectively plant hardy growths of flowering shrub or herbaceous plants, as well as the dwarf and slow-growing broad leaf and coniferous evergreens. By all means, however, avoid an epidemic of "shrub fever." Often have we been advised to make "judicious plantings of flowering shrubs." I would advise a careful attention to the meaning of the word "judicious," to the end that it may not be interpreted as meaning "promiscuous."

On the deciduous shrub proposition, we really have two flowering seasons, spring and fall. It is useless in a cemetery to try to make more out of it. We have read and been told much about the desirable effects of foliage all summer, and colored bark and fruit effects in winter. These are all very well in large group plantings in parks, and for some large border plantings on the boundaries of cemeteries, but I do not approve their use in internal cemetery areas, or between or near lots. They are overgrown and cumbersome in a very few years and provide an attractive place for harboring injurious insects as well as for the depositing of rubbish of all kinds.

I like freer use of the spring flowering bulbs, especially those that will live on and increase and thrive for years. How the crocus, scillas, narcissus-von sien, poeticus and trumpets in their several varieties do brighten things up, and with so little thought and care, and don't forget the hardy lilies.

have a fence of this character are obvious. Park superintendents, commissioners and civic improvement associations, however, often have a mistaken idea of the cost, the prevailing impression being that to erect an iron fence and entrance gates to a park means a necessary expenditure of a large sum of money. Of course, as much money can be expended on an improvement of this kind as the park commission desires, but it is not necessary to put up the more expensive class of work. A large number of plain yet attractive and substantial designs of iron fence, suitable for parks, are shown in The Stewart Iron Works Co.'s general catalogue and the prices are such that the installation of a good iron fence is not expensive. This is an improvement that means so much to the general appearance and proper preservation of a park that it is much better to erect a plain, modern priced iron fence than to put off the erection of a fence until something more costly can be secured.

REQUIREMENTS FOR MAUSOLEUM CONSTRUCTION

An address before the Ohio Cemetery Association, by L. Y. Stephens, Superintendent, Greenlawn Cemetery, Columbus, Ohio.

A very large percentage of mausoleums erected in our cemeteries could be made much more permanent than they are usually constructed by a slight additional investment on the part of the owner. Competent designers and builders who have made a careful study of the business state unhesitatingly, and we are of the same opinion, that the marble usually adopted for mausoleum interiors is entirely too thin, and we should insist that all marble for mausoleum interiors should have a minimum thickness of 1½ inches. Marble 2 inches is preferable. Keen competition on the part of builders and the lack of experience in such matters on the part of many builders and of most purchasers is responsible for marble 7⁄8 of an inch in thickness in most of our mausoleum interiors. Even though marble of this thickness is securely anchored, it is not strong enough to last any great length of time, and will give way long before the outer walls, usually of granite, will be in any way affected. This objection is sometimes overcome by omitting marble entirely from the construction and either substituting granite for the marble interior or cutting the inside of the granite walls smooth and have the granite main wall form the sides of the vestibule. It is generally believed by many designers and builders that when this is done and no inner construction is adopted that there is little or no chance to ventilate, and that the granite inner walls are found to be very damp most of the time, and especially so through the early spring and summer.

We beg to differ with them, however, for we know that proper ventilation can be given to prevent dampness under such construction. We have a building in our cemetery with the granite main walls forming the sides of the vestibule, and at no time have we ever found the interior damp. A granite interior is considerably higher in cost than marble and for that reason prohibitive in most cases. Therefore we recommend the adoption of heavier marble, if marble must be used, as a protection to both the owner and the cemetery association. Where interior granite walls are to be used for the vestibule, the construction of the catacombs should be of granite only.

A mausoleum should never be built without a granite platform at least two feet wide around the entire base of the building. This should be housed two or three inches under the base, thus doing away with a vertical joint at this point. The platform should not exceed more than an inch or two in height above the grade of the lot. And all mausoleums should have a granite platform not less than 5x8 feet in front of the steps, set one to two

inches above grade. All of this would add somewhat to the cost, but would be well worth the additional expense.

Mausoleums should be placed on much larger lots than are usually selected for them. Invariably the purchaser has a tendency toward the selection of a lot just about one-third the size suitable for a mausoleum, so that when they come to the planting and landscaping they find that they are cramped in that direction. All surroundings to mausoleums should be landscaped in keeping with the style of architecture. Mausoleums should never be located on a steep side hill, but only on level ground should they be built, and in a position of advantage to the building and not to a disadvantage of nearby and less pretentious memorials.

The foundation for a mausoleum should be made in strict accordance with the cemetery association regulations. If there are no governing regulations, as the case may be in smaller cemeteries, than we would recommend the following: All foundations should be at least five feet in depth, and we are of the opinion that vitrified brick, with Portland cement of one part and three parts clean, sharp sand, makes the very best foundation.

Foundations of well-mixed concrete are perhaps as good for their lasting qualities, but are more likely to draw dampness if not well waterproofed. A substantial foundation may be built of rubble masonry and of native stone laid up well in bond on natural bed, well wetted before layed in the wall and well bedded with cement mortar composed of one part of Portland cement to three parts clean, sharp sand, the sand and cement to be thoroughly mixed dry in mortar box before adding clean water, the mixture to form a stiff paste.

In our opinion, foundations for mausoleums should never be built solid; there should be a good-sized air space at least under the floor of the vestibule to prevent dampness.

We firmly believe in proper ventilation of mausoleums and would recommend the adoption of mausoleum plans only where they show sufficient air space between the main walls and the vestibule lining, with vent openings on each side at the top and at the bottom of the building. There should also be vent openings in the ceiling of the vestibule to prevent condensation.

Architecture: There is a great opportunity for improvement in the architecture of our mausoleum; often a slight increase in the amount of the appropriation, provided the work is placed in the hands of competent mausoleum architects who have a genuine desire to elevate the standard of

mausoleum and other monumental work in our cemeteries, will greatly improve the general appearance and construction of the buildings. Both owners and those to whom are entrusted the responsibility of preparing designs and plans should be encouraged to strive for the higher class of design and workmanship. It is not out of place on the part of cemetery superintendents to urge this.

Many cemetery superintendents have had the unpleasant experience of attempting to place a body in a mausoleum, only to discover that the catacomb was not large enough to contain the casket. Each year makers have shown a tendency to increase the size of caskets, and those who have to do with the erecting of mausoleums, whether the owner or the cemetery association, should insist upon catacombs sufficiently large to avoid any embarrassment or unpleasantness when occasion requires their use. The minimum size of catacombs should be 7 feet 6 inches in length, 2 feet 8 inches in width and 2 feet 2 inches in height. It is now a common occurrence for capable mausoleum designers to call for catacombs 2 feet 10 inches in width.

When only two or three catacombs are to be provided in a mausoleum and the size of caskets to be placed therein may be known in advance, there is no objection in that particular case to allowing the privilege of smaller catacombs. All catacombs should be carefully sealed when occupied. We recommend an opening the size of a lead pencil through the slate at the rear of each catacomb into the air chamber, this opening providing for the escape of gases that may form from the body.

It is also advisable to have a shallow canal leading from each corner of and on the bottom of the catacombs to the center of the bottom, thence to a point at the rear of each catacomb in the air chamber. This canal will provide for condensation if any within the catacombs.

There must come a time, sooner or later, in the life of every such structure, if its beauty and stability are to be maintained, when repairs will be imperatively needed; so that any person or persons erecting a mausoleum or other structure fashioned and designed to contain the remains of the dead above ground should be required to first donate to the cemetery association a sum of money or fund for perpetual care. This sum should be in amount not less than 10 per cent of the total contract price or cost of the structure, this sum to be held by the association in trust, and to be invested with other funds of like character,

ASKED AND ANSWERED

An exchange of experience on practical matters by our readers. You are invited to contribute questions and answers to this department

Best Surface for Playgrounds.

Editor Asked and Answered, PARK AND CEMETERY: I would like to know what is being used on the various up-to-date playgrounds as a surface for the surroundings of the gynasiums, etc., where it is not possible to grow sod. We have here a soil which is very sticky when at all wet, and though coating with fine cinders makes a fairly good surface, yet it is apt to be dusty and is not by any means ideal. Sand or fine crushed stone is open to the same objection. I had thought of oiling surface of playground to keep down this dust, but am a little afraid of its action on the children's clothes. Probably some of our superintendents can give me some information as to the ideal surfaces.—G. C., Can.

We have just this season commenced the oiling of our playground parks with "Tasscoil," a substance purchased from Alden Speare's Sons Co., Boston, Mass. This is a light, almost colorless oil, and is being used for keeping down the dust. In tank carlots the price is about 6½ cents per gallon and in smaller lots (barrels) about 12½ cents per gallon. For a more detailed experience with this substance please refer to H. W. Richards, of the South Park Commissioners, as this substance has been used extensively by the South Park Commissioners in the past year or so.

A. C. SCHRADER,

Superintendent and Engineer, West Park Commission.
Chicago, Ill.

Regarding playground surfacing, I wish to give the following answer to your correspondent:

Replying to inquiry regarding treatment of playground surface, I wish to state the following: We have used oil for two seasons and obtained satisfactory results under similar conditions as outlined above. If a colorless, non-asphaltic oil is used, which penetrates very quickly, I do not believe children's clothes will be damaged; at least we have had no complaints so far.

The oil we use is sold under the trade name of "Tasscoil," by Alden Speare's Sons Co., 156 Sixth street, Cambridge, Mass. The cost of the oil was about 7 cents per gallon in carload lots.

Last year we tried "Glutrin" and obtained satisfactory results where the surface was a mixture of clay and sand. It made the surface very hard and firm and practically dustless. This material we obtained from the Robeson Process Co., 39 Cortland street, New York City, and you can obtain from them a circular dealing extensively with this subject.

THEODORE WIRTH,

Superintendent of Parks.

Minneapolis, Minn.

I have found that the best surface for playground areas is a well drained sandy loam in which there is a slight mixture of clay, enough to give the soil stability, but not enough to cause it to be sticky directly after rainy weather. Cinders, even though finely screened, are sharp and cut the hands.

I have found it possible to lay the dust on larger fields by the use of oil emulsions, using not over 10 per cent fuel oil; also applications of very light oil may be used satisfactorily. I have never found, when care is used, that there has been trouble resultant in damaging of children's clothes.

I have usually formed play fields by the use of a semi-clay soil well rolled in place, thoroughly under-drained and covered with a very thin coating of washed torpedo sand rolled in place, and think this method probably has advantage over any other type in cost and in comfort to those using the fields.

Areas used for installation of outdoor gymnasium apparatus and which undergo an unusual amount of use may be paved with asphaltic concrete, taking care that a resilient surface is formed, but that, on the other hand, an asphaltic compound is used which will not become sticky in hot weather.

M. H. WEST,

President, American Park Builders.
Chicago, Ill.

Squirrels Again.

In a recent issue of PARK AND CEMETERY I noticed an interesting discussion regarding the depredations of squirrels in public parks. I notice that several of the correspondents state that squirrels destroy birds' nests and eat the buds and twigs of trees and shrubs.

Your readers, I am sure, would be interested to know that the superintendent of parks of Providence, Mr. Fred C. Greene, has taught the gray squirrel to enjoy eating various species of bulbs such as narcissus, tulips, etc. Of course, Mr. Greene had no intention of teaching these interesting animals to acquire a taste for the spring

bulbs, but nevertheless that is what has happened.

There are a large number of gray squirrels in Roger Williams Park and they are fed regularly with peanuts. In the fall of last year Superintendent Greene planted several thousand bulbs underneath the trees and on the banks of the lakes. The bulbs were first scattered all over the grounds and then the men went along and planted them wherever they happened to rest. Undoubtedly many of the bulbs were not planted and were discovered by the sharp eyes of the squirrels. It is hardly possible to suppose that at first the squirrels enjoyed the bulbs, but no doubt when food became scarce through the winter they acquired the taste for them. The result has been that many of the beds in which the bulbs were planted in the fall have been seriously damaged. The squirrels burrow down in the soil and take out the bulbs bodily. In other cases they have waited until the bulbs were well up and the flower bud showing in the leaves before they have attacked the plants. The flower buds seem to be just as palatable to them as the bulb itself.

Kingston, R. I.

E. K. THOMAS.

Labels for Trees.

The New Bedford branch of the Massachusetts Forestry Association has set out in this city over a thousand trees and is considering tagging the various trees to let the public know what kind they are and who did the work. Could you give us the names of any concerns who carry in stock what we want? We want the common name tags or labels in preference to the botanical designations.

GEO. H. REYNOLDS.

New Bedford, Mass.

You can get labels or tags for trees from the Standard Sign Manufacturing Co., Pittsburgh, Pa.; the Bateman Manufacturing Co., Grenloch, N. J.; Sefton Bros., 70 West Madison street, Chicago; New York Stencil Works, 100 Nassau street, New York; Benfield & Milne, 92 Fulton street, New York; Ingram-Richardson Co., 100 William street, New York; Enameled Iron Sign Co., 29 Murray street, New York.

THE OBITUARY RECORD.

Mrs. Virginia Graves, the oldest citizen of Bloomington, Ill., in point of years spent there, and mother of Arthur J. Graves, superintendent of the Bloomington Cemetery Association, died recently from an illness of several months' standing. Seventy-seven years a resident of Bloomington, Mrs. Graves was known to almost the entire community, and her passing is deeply mourned. Mrs. Graves, born Virginia Hayden, was a teacher in the first private school ever established in Bloomington. Until the time of her marriage her entire attention was given to teaching and

she retained an intense interest in school affairs throughout her life. Her marriage to Linus Graves took place in 1847, Mr. Graves preceding her in death after fifty years of married life. Six children—three son and three daughters—were born of the union, two of the daughters dying in infancy. The survivors are Walter H., living in Portland, Ore.; Linus R., living in Los Angeles, Cal.; Arthur J., residing in Bloomington, and Mrs. J. C. Means, with whom Mrs. Graves had made her home many years. There are five granddaughters, two grandsons and four great grandchildren.

ORIGINALITY IN GERMAN CEMETERY MONUMENTS

The common types of design for cemetery monuments are at present very much overworked. We are in need of something newer and more effective in the way of architectural combinations and better proportions in our cemetery monuments. In showing these special German designs we believe there is much in the way of suggestions for working out some newer forms of the monumental tablet style of memorial that seems at present to be making itself felt in the better class of cemetery monuments. German artists have been particularly successful in some of their designs of cemetery memorials in producing graceful architectural forms for small and medium size memorials, and a careful study of these will, we believe, bring some ideas of value into American monumental art. These forms are not always suited to our styles of memorials or to the arrangement of our cemeteries. The American designer will, however, easily perceive where details can be adapted to our needs and he will be able to utilize artistic architectural suggestions in a way that will make them entirely appropriate to our styles and our cemeteries. The movement for improving cemetery art in Germany has been much more active than it has in this country. The designs shown here were selected in a competition of the Society of German Artists and Architects and executed exclusively in that country by the national organization of German granite workers. They are admirably suggestive both in designs and in the methods of securing them, of work that may be done in this country by associations of all those interested in the production of more artistic cemetery memorials.

The prize German design for a Gothic tablet inscribed "Anton Ernst Wermann," illustrated, is one of the cleverest adaptations of genuinely beautiful architectural proportions and grace of line to the small tablet form of memorial. To some tastes the decoration which cuts away the corners of the tablet may appear a little heavy or out of place, but it will readily be apparent that this corner decoration could be omitted and the corners finished like the rest of the face of the memorial without impairing the design. The curving slope of the cap, the appropriateness and grace of the cross decoration and the lettering will find favor with nearly everyone who sees this interesting little design. It is the work of P. Hempel, of Dresden, and was selected in a competition of German artists and architects, and is executed in Germany exclusively by the Association of German Granite Workers, to which organization we are indebted for the courtesy of reproducing in this country this design and the others shown herewith.

The little tablet with a flower receptacle

in the base, shown on the next page, is an unusually fine architectural form. This design is by L. Fuchs and was selected in a competition of German artists and archi-

sioner). illustrated on the page following, shows an unusually interesting and ornamental effect in treating the cap of an otherwise severely plain

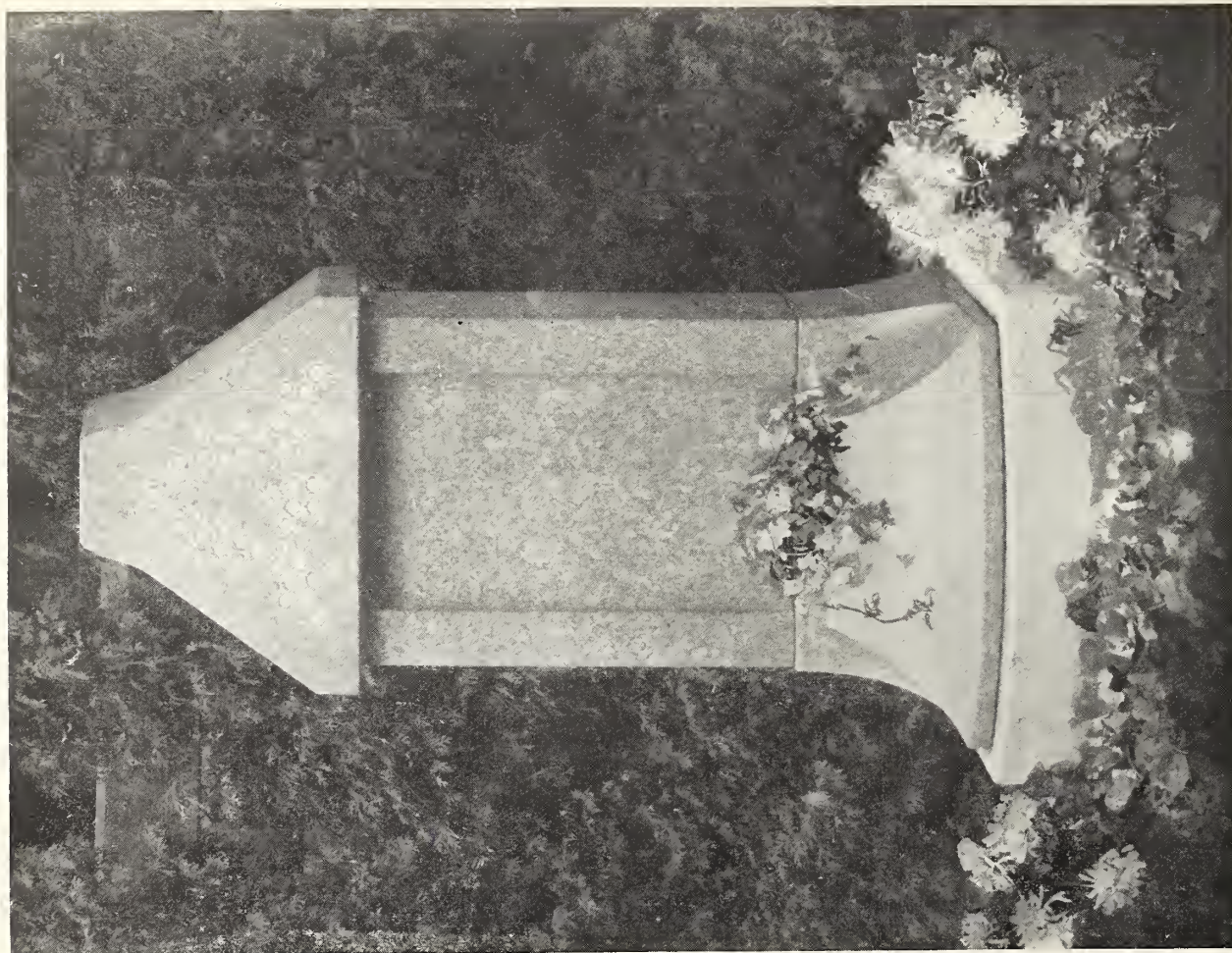


PRIZE GERMAN DESIGN FOR GOTHIC TABLET.

teets. The interesting cap and base treatment and the sunken die are suggestive of decorative effects that might be secured by American designers who are clever at adapting design ideas to our styles of cemetery memorials. This memorial is executed in hammered Labrador granite.

The memorial to "Kurt Hein, Königlich-Baurat" (Royal Building Commis-

monumental tablet. The architectural canopy that encloses an urn, with its polished pilasters and rarely expressive little polished relief figures, is designed and executed with remarkable artistic skill. The inscription, in a delicate raised letter, is so well balanced and well placed as to also contribute substantially to the decorative effect. This was executed in black Swe-



GERMAN TABLET MEMORIAL, WITH VASE CUT INTO BASE



MONUMENTAL TABLET WITH POLISHED DECORATIVE CAP.

dish granite, partly hammered and partly polished, and is the work of A. Rupp.

The "Ferdinand Hapf" memorial shown is another one of those beautifully decorated German monumental tablets. It was designed by Hans Kreuzer in a competition of the German Society of Artists and Architects and is executed in black Swedish granite, all polished. It is to be commended for its simple dignity and fine lines.

COMBINED PUBLIC MONUMENT FOUNTAIN AND FORUM

Decatur, Ind., in its newly dedicated soldiers' monument has one of the most original, artistic and useful memorials of any city of its size in the country. Charles J. Mulligan, of Chicago, who designed the Decatur memorial, planned that it should be a symbolic memorial to the soldier dead, and something more, and it is this something more that makes it a new form of soldier monument.

The work takes the form of a combined monument, public forum for outdoor exercises, and public fountain.

The customary memorial attributes are provided in a stately symbolic figure of Peace, standing before a massive wall or exedra, bearing in bronze tablets the names of 1,276 soldiers of Adams County. In front of the wall is a seat for speakers and a platform or forum, with vases at either corner. The ulterior purpose of the memorial is thus to stimulate the holding of patriotic exercises and public speaking here where the associations aroused by the memorial may be the inspiration to patriotic action. The people will thus be brought into closer contemplation of their soldier monument, and the structure itself will serve an actual utilitarian function. The rear face of the wall emphasizes again the useful character of the work. It is a sculptured representation of the part the women played in the war, executed as the central motif of a fountain.

The entire structure, with the exception of the bronze tablets, is executed in Blue Bedford stone. The sculptures were carved by Mr. Mulligan and C. M. Dodd, of Bedford. Mr. Mulligan himself did the final work on the figure of Peace, on the memorial itself after the work was erected in Decatur. The view of the sculptor working with his model posing in the public square was a novel sight and emphasizes the care with which the work as a whole was adapted to its site and its use.

George E. Wemhoff, of the Wemhoff Monumental Works, of Decatur, was the local contractor for the erection of the work.

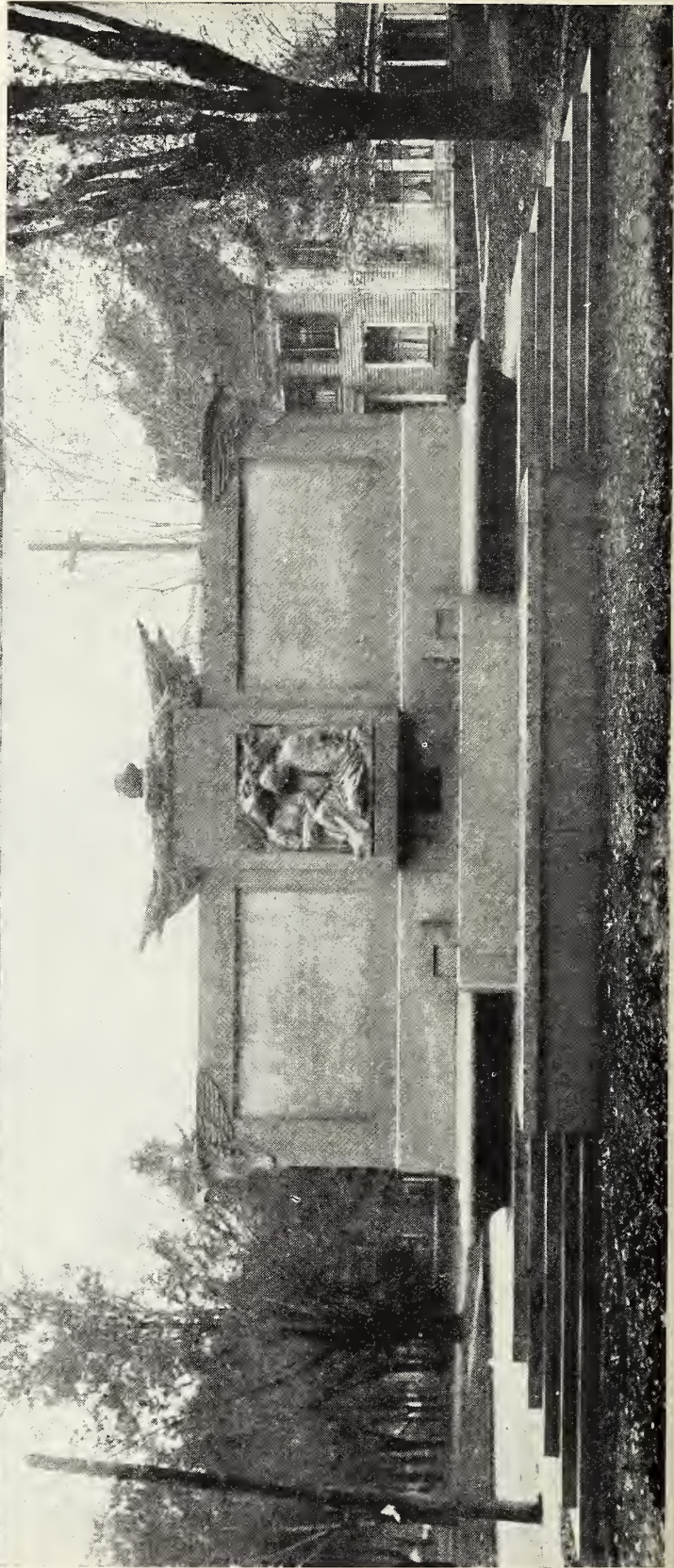


ARCHITECTURAL TABLET IN POLISHED BLACK SWEDISH GRANITE.

The central feature of the front face of the memorial is the statue of "Peace," represented by a stately female figure of heroic size, facing the right. Her left hand rests on the American shield. On the shield are the thirteen stars and thirteen stripes. Back of the shield, at the side of the figure of Peace, hangs the scabbard and the sword, sheathed and at rest. Her right arm is extended and rests along the top of the monument, on the implements of war, now at rest—the gun, the cartridge box, the canteen, and the flags which are draped or looped around a now unused

bier. In her hand she holds a laurel branch, symbolic of glory. Her figure is draped in an ample flowing gown, falling from her breastplate, which is formed of the spreading wings of the American eagle. On either side of the central figure of Peace extend the two wings of the main shaft of the monument, in open-book form. On each of the wings is a bronze tablet bearing the names of the soldiers of the county, 1,276 in all. At the four corners of this shaft are conventionalized American eagles. At the base of the shaft is a seat-like projection for the accommoda-

FRONT VIEW, DECATUR SOLDIERS' MONUMENT.
Charles J. Mulligan, Sc.



REAR VIEW, DECATUR SOLDIERS' MONUMENT.

tion of speakers, with a forum at the front of the figure of Peace. The seat is a distinctly new arrangement, and very conveniently designed for the purpose. On either side of the forum are two vases on pedestals, which will be filled with flowers. Leading to the wide plaza that surrounds the monument are a series of five steps, nearly surrounding the monument.

To the women of the war the rear of the monument is dedicated. The central figure here is an alto-relief of a nurse on the field ministering to a wounded soldier. A tree forms a background. The nurse is shown half kneeling, and supporting the wounded soldier, whose shattered right hand she has just bandaged. The soldier, exhausted and fainting, supports himself on the ground with the other hand. Above this alto-relief is carved a tribute to the women of the war, composed by French Quinn, of Decatur, as follows: "To the women of our nation, as a tribute to their courage, devotion and sacrifice." On the east wing of the monument is inscribed: "To the glory of our country and in loving memory of our soldier heroes." On the west wing will be cut the names of the several soldiers whose names were overlooked in the compiling of the list for the bronze plates. Beneath the central figure is the fountain, which forms a balance for the forum at the front. From the base of the relief figure, the water falls in a broad sheet, through which, at the base, may be seen the "Maine tablet" made from the metal of the battleship Maine. The relief figures on the tablet show dimly through the falling water.

The fountain is rendered more beautiful at night by colored electrical effects. In front of the fountain, at either side, are pedestals for vases which are to be filled with flowers on special occasions.

The monument is 42 feet 6 inches long, in width, 18 feet 6 inches, and in height, 18 feet. The female figure is 12 feet 3 inches in height.

The total cost of the work was \$10,000.

The unveiling day was one of the greatest civic celebrations the town has seen. A salute of twenty-one guns ushered in the day at sunrise and at 7 o'clock every factory whistle and church and school bell in the city called the populace to attention. All the county and city schools dismissed for the day. Visitors from neighboring cities, counties and high officials of the state and nation came in. Farmers laid aside their work, as well as the business men of Decatur. The entire town formed a reception committee and until the dedication hour the visitors were entertained royally. Governor Ralston, of Indiana, delivered the principal address.

NEW AUSTIN TANDEM MOTOR ROAD ROLLER.

The Austin-Western Road Machinery Co., of Chicago, have just issued an advance announcement of their new tandem motor road roller, which is shown in action in the accompanying illustration. This machine is designed for rolling asphalt, brick and tarred pavements.

They exhibited this machine for the first time at the recent American Road Congress, and it was an interesting attraction in the machinery section, and met with warm praise from many practical road builders and paving contractors.

The machine embodies many improve-



AUSTIN TANDEM MOTOR ROLLER IN ACTION.

ments. It runs steadier, has an easier and smoother reverse, is fitted with two gear speeds and power steering device, the latter giving the operator better control. In rolling, the machine does better work by reason of its weight being hung lower. The operator on this tandem gets a better view, not having the boiler in his way, and he can see his work better sitting down than he can standing up. The five-ton machine is the first that they are putting on the market. The six-ton is also ready for the market, and the seven and eight-ton will be ready immediately after the new year.

Following are the specifications of the five-ton tandem roller:

Length over all, 170 inches; width over all, 54½ inches; height over all, 69 inches; gasoline tank capacity, 25 gallons; sprinkling tank capacity, 60 gallons; cooling tank capacity, 100 gallons; road travel in low gear, 2¼ miles; road travel in high gear, 3½ miles; diameter rear roll, 46 inches; diameter front roll, 33 inches; width of rolls, 42 inches; clearance under frame, 11 inches; two cylinder opposed motor; two speeds forward, two speeds reverse; both power and hand steering gear; all gears and motor completely enclosed.

PARK NEWS.

The Park Commission of Cincinnati O., plans some extensive improvements in some of the parks and playgrounds. Plans are made for the erection of pergolas on each side of the present shelter house at Inwood Park. They will be of concrete construction. Plans for a shelter house in Washington Park are also under consideration. It will contain an assembly room 21x30 feet, on each side of which will be lockers for the girls and boys. There will be shower baths and a wading pool in front of the building. There will also be a shelter house erected in Lincoln Park, which will contain an assembly room. The building will be provided with baths, lockers and other conveniences. The playgrounds at McMicken and Walnut will also be improved by the erection of an assembly room, shower baths and lockers for both sexes. There will be a pavilion in front, which will contain the boys' and girls' rooms. These improvements will cost thousands of dollars, but every citizen will consider it money well spent. The work on the new buildings will be let as quickly as possible, and before many weeks the boys and girls in the different sections of the contemplated improvements will consider life well worth living.

Steps toward acquiring a five-acre tract of land adjoining the Emerson school ground, Gary, Ind., for playground purposes, were taken by the City Council through the introduction of an ordinance authorizing a bond issue of \$20,000 for park purposes.

Secretary of the Interior Lane has recommended the withdrawal of more than 34,000 acres of land near the city of Denver, which it is planned to convert into a park. The land is picturesque for park purposes, it was reported, but not of value for agricultural, mining or other use. The land was withdrawn temporarily during the Taft administration, but reverted to the public domain because of lack of congressional action.

First Assistant State Engineer John Johnson, from the State Highway Department of Illinois, is making property surveys of the Starved Rock State Park. He is being assisted by Raymond Bradford and George Hemmerle, of Ottawa, and W. Gostonski, of La Salle. After this work is completed the survey for new sewers, drainage and roads will be started. A new member of the State Park Commission is Thomas Cahill, of Ladd, who was appointed to succeed the late D. L. Crowe. The

commission is negotiating for the rest of the land in the reservation and expects to be able to close up with the twelve different owners without resort to the courts.

From Park Reports.

Superintendent Joseph Bernard, of the Park Commission of New Orleans, reported in his November report that the hay-making had been completed. All lawns were cut, hedges trimmed, boats, benches and swings repaired, and many plants were removed to the hothouse. All flower beds where plants were taken out are being prepared for winter planting. The nursery was thoroughly cleaned and the cleaning process is being actively pushed on the back woods, ditches, roads and walks. The Day bridge was finished, accepted and the first payment thereon made. The Weiblen Marble Works have considerably advanced on the Beauregard monument and are now working on the Monteleone gate.

In the annual report of the Park Commissioners of Hartford, Conn., it is noted that the use of the parks by the public during the season of 1912 was much increased. Superintendent Parker reports that 665,000 people were in attendance, enjoying the various activities of the parks. The season of 1913 gave much larger attendance, and it is estimated that over a million people visited the parks and enjoyed the many sports and games. The public cemeteries under the jurisdiction and care of this department have been improved, and the demand for burial lots is steadily increasing. Superintendent Parker makes an interesting and comprehensive report on recreation in the parks that will be printed in detail in a future issue of PARK AND CEMETERY.

New Parks and Improvements.

Plans for a "city beautiful" for Springfield, Mo., which will provide boulevards, parks, driveways and other features of civic beauty, and which will include improvements lasting over a period of some fifty years, are being made by the Springfield Park Board, under the direction of Hare & Hare, landscape architects of Kansas City. Representatives of the firm have been working in Springfield the past month and have made good progress with the preliminary plans. They are preparing plans for three parks in Springfield and have the contract for the plans for the entire system of parks and boulevards for the city. One of the parks is ten acres, centrally located, and is to include lake with boating and bathing, children's playground, field, etc. The lake will be supplied with water from a large spring, which will be one of the features of the park. The other two parks are smaller and will be developed with more attention to beauty and less to play. Hare & Hare have just completed a preliminary sketch for improvements on the Courthouse Square, surrounding the courthouse at Carthage, Mo. Adjoining Wagner Place, at Jefferson City,

Mo., which they planned last year, they have recently planned a new residential addition known as Fairmount Place. They have other interesting work under way and report a busy season.

The City Park Commission of Albion, Mich., has recommended the purchase of the forty-one acres on Dickie's hill for a public park and playground for the city.

The City Federation of Women's Clubs of Hutchinson, Kan., is actively promoting a civic center.

Another small park is to be added to New York's system of open air breathing places on the East Side. The new park is in Yorkville and faces First avenue, between Sixty-seventh and Sixty-eighth streets. Park Commissioner Stover says that he expects to have the park in shape the coming summer.

A gift of land amounting to about six

acres, to be used for park purposes, is offered to the city of Canton, Ohio, by Henry A. Shock.

Plans for the development of New York City's new \$1,300,000 seaside park at the Rockaways were taken recently. A committee composed of Charles A. Platt, landscape architect of the Park Department; Nelson P. Lewis, chief engineer to the Board of Estimate; Walter G. Eliot, park commissioner of Queens; Robert G. De Forest, of the Municipal Art Society, and Arnold W. Brunner, architect, are considering fourteen plans submitted by landscape engineers from all parts of the country.

Leon, Ia., has been presented with a public park through the generosity of Mrs. J. W. Harvey, who has offered a tract of ground comprising about two acres fronting on South Main street, known as the old Lunbeck property.



Oakland, St. Paul, Turns Down Tenement Mausoleum.

Representatives of a "community mausoleum" building company have been presenting their scheme to the trustees of this association and the matter was referred to a select committee to investigate and report. The report of this committee was made to the board on December 3 and was unanimously approved. The following is the text of the report:

"The committee to which was referred the consideration of the community mortuary mausoleum begs to report that the matter of entombing the dead in the manner proposed is so entirely new that there is not sufficient experience to determine whether it will eventually be satisfactory to either the purchaser of the crypts or to the cemetery association.

"This, with the adverse report on the subject at the late meeting of the cemetery superintendents, leads your committee to recommend that further consideration of the subject be indefinitely postponed."

F. D. WILLIS,

Supt., Oakland Cemetery.

St. Paul, Minn.

A most flagrant case of vandalism in the cemetery at Barre, Vt., was reported November 14, when Superintendent Alex Hanton, of the cemetery commission, went to Elmwood and discovered a number of monuments that had been tipped over in the night. In almost every section of the cemetery there were evidences that the spoilers had got in their work. A part of the Alexander Gordon monument and several other memorials were destroyed. Markers and iron memorials in different parts of the burial grounds were the ob-

ject of special attention from the night prowlers.

James H. Thompson, formerly of Dixon, Ill., has been appointed superintendent of the National Cemetery at Jefferson City, Mo. Mr. Thompson has been assistant at the National Cemetery in St. Louis since last April.

•Resolutions against conducting funeral services on Sunday have been passed by the South Side Ministerial Association of Pittsburgh. The pastors say their objections are due to the amount of work required of the members during the week and that some cemeteries do not permit interments on Sunday. The resolutions refer to "a large element of non-church people who often request that such services be held on Sunday."

Everett Cemetery, Everett, Wash., has several unusually interesting water effects in the form of ornamental fountains, and photographic postcards of three of these that we have received show striking landscape views in the grounds.

Spring Grove Cemetery, Cincinnati, announces the following new schedule of charges for building foundations to take effect January 1: 12x12 inches, including setting of marker, \$4.50; 12x16, \$5.50; 12x18, \$5.50; 12x20, \$6.50; 12x24, \$7.80. For sizes above this, per cubic foot, 35 cents. All foundations are made with cement mortar and not less than six feet deep.

Oakland Cemetery, St. Joseph, Mo., has been sold to Zion's German Evangelical Church. The purchase price was \$27,500. This church has long owned Ashland Cemetery and it has found it necessary to acquire additional ground. The tract em-

Tarvia

*Preserves Roads
Prevents Dust~*



Forest Lawn Cemetery, Omaha, Nebraska. Treated with "Tarvia B."

For Repairs: One Bbl. Per 1,000 Yards in Five Years

FOREST Lawn Cemetery in Omaha has been using Tarvia for several years to preserve its roadways and prevent dust.

About 20,000 square yards were laid in 1907 and 1908 and exposed to very heavy traffic conditions, the weight of some of the loads (monuments) being from 12 to 20 tons.

Plain macadam would not stand such traffic but the tarviated surfaces remained in perfect condition despite it.

In November, 1912, Supt. Jas. Y. Craig wrote:

"Our continual experience with Tarvia has been very satisfactory and our pavement, some of which has been laid five years, is in very good condition and the cost of maintenance has been very small, having used about 20 barrels of "Tarvia B" for resurfacing and repairs."

Note that this has been at the rate of one barrel to a 1,000 square yards of five-year-old roadway for repairs. It is on such facts as this that we base our statements, that Tarvia costs nothing, inasmuch as the saving in maintenance expense more than balances the price of the Tarvia.

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braces seventeen acres. Oakland Cemetery has been improved during the last three years to the extent of \$15,000. Macadam has been placed in the driveways, the grounds graded and substantial retaining walls built. It joins Ashland at the rear and a driveway will be constructed to connect the two cemeteries. The Board of Directors of Zion's Church comprises Fred Wenz, Adolph Goerman and P. Schneider.

New Cemeteries and Improvements.

Fairlawn Cemetery, now in the course of construction in Decatur, Ill., by Sims & Sims, will probably be opened this year. Work has been pushed forward on the new cemetery as fast as possible.

Papers of incorporation of the Lock Berlin Cemetery Association at Lyons, N. Y., have been filed. The three directors are: John W. Stokes, Samuel Richmond and William T. Jordan.

William Speed, a Louisville landscape architect, has just completed a contract with the Grove Hill Cemetery Co., of Shelbyville, Ky., for further beautifying its property by planting a large number of forest trees and evergreens along its Mt. Eden pike frontage and in the addition. The improvement cost \$1,000. Recently the company expended \$3,000 for an ornamental entrance gate.

The Mound Cemetery Association, of Charleston, Ill., has been incorporated and has purchased from Alex Briggs twenty-five acres of land adjoining Mound Cemetery and will take over fifteen acres of it for a cemetery at once, the other ten acres to be taken on later when needed. Mr. Briggs is to be paid \$10,000 for his land and is to receive 50 per cent of the price of each lot as paid in until the fifteen acres are paid for, then the ten acres is to be taken over and paid for in the same way. Mr. Briggs is the only member of the corporation who puts any money in the undertaking, it being understood that he pays over \$500, which, together with the money derived from the sale of fifty lots which the association intends to put on the market immediately, will form the capital to pay for preliminary improvements, such as fencing, roadways, etc. After Mr. Briggs' 50 per cent is paid the remaining 50 per cent of all sales is to be applied one-half in improvements and upkeep and the other half going into a permanent fund which cannot be used for any purpose. When the tract has been fully improved the 50 per cent will be divided differently, about 10 per cent going for upkeep and 40 per cent into the permanent fund. After the land has been paid for the rate of division of income will be about ninety and ten. When the amount of money on hand has reached \$50,000 nothing but the interest can be used. Under this plan it would seem that the cemetery question will be very satisfactorily settled for many years to come. The affairs of this corporation are to be

conducted for the present by a set of officers and a board of trustees elected by the stockholders. The officers elected are as follows: President, George Griffin; vice-president, C. L. Lee; treasurer, W. H. Shubert; secretary, John H. Marshall.

Rev. Mutshnick has taken the initiative at Belfield, N. D., to secure a plot of ground to be used for a city cemetery.

Forest Hills Cemetery, Chattanooga, Tenn., announces the opening of the first of a group of up-to-date greenhouses, scientifically built and fully equipped for first-class floral work, under the special direction of G. A. Kimmel, a well-known florist.

A plot of ground, comprising about one and one-half acres, has been purchased by the Slovak Evangelical Lutheran Church at Binghamton, N. Y., for cemetery purposes.

The new cemetery of St. Hedwig's Catholic parish at Dunkirk, N. Y., was consecrated recently by Bishop C. H. Colton, of Buffalo. The cemetery comprises twelve acres in the Bennett road.

From Annual Reports

The following statistics of the year's business are from the annual statement of receipts and disbursements of Spring Grove Cemetery, Cincinnati, Ohio:

Receipts: From sale of lots, \$47,255.55; interments and foundations, \$31,116.50; Myrtle and special care account, \$26,906.52; trust fund account, \$31,412.80. Total receipts, \$168,395.69.

Disbursements: For lots repurchased, \$846.90; interments and foundations, \$13,652.86; Myrtle and special care account, \$8,039.75; carriage and automobile account, \$1,020.89; purchase of large passenger automobile, \$2,710.70; planting and seeding, \$2,236.73; implements, \$201.50; fuel, \$1,844.53. For operations and maintenance: Grounds and buildings, \$31,830.85; water plant, \$3,907.66; stables, \$4,591.66. Total disbursements, \$168,709.61.

Number of lots sold during the year, 118; fractions, 11; area, 47,389 square feet. Number of vault permits issued, 35; burial permits, 1,377, of which 45 were removals from other grounds; single graves occupied, 16,305; interments to date, 83,907; lot holders, 12,121.

The Board of Park and Cemetery Commissioners of Saginaw, Mich., has issued a 152-page annual report telling in detail of the work of the year. The most important improvement under the direction of this board has been the reclaiming of the middle ground or island marsh, now a portion of Ezra Rust Park, and the deepening of the river and bayous surrounding the same. This work was performed under contract by the Great Lakes Dredging Co., requiring two years' time to raise this island swamp or marsh with fill from the river and bayous to heights, in certain locations, of five and six feet above city

datum. During the past year the Mershon-Whittier Natatorium was also opened. During the first season of its use it was patronized by 37,000 bathers at Forest Lawn Cemetery. The Jefferson Avenue entrance gates and parking were constructed and improved from a fund provided by the late William L. Webber. The Washington avenue entrance is now improved with wrought iron gates of neat design and with simple but massive granite piers. O. C. Simonds, of Chicago, has prepared a plan for planting at this entrance. The trust fund for this cemetery now amounts to \$73,150. Daniel H. Ellis is superintendent of parks, and A. H. Arnold and A. Lutzke are sextons of cemeteries.

The Harrison Granite Co., of New York City and Barre, Vt., has just been awarded a contract for the new receiving vault for the Rome Cemetery at Rome, N. Y. The building will have a capacity of 1000 bodies and will be erected out of Gouverneur marble. The building will have bronze doors and grilles, two large art glass windows and a Spanish tile roof, making a very effective plan. The design was executed in the Harrison studios in New York and was sold through their Syracuse office by H. L. Davis.

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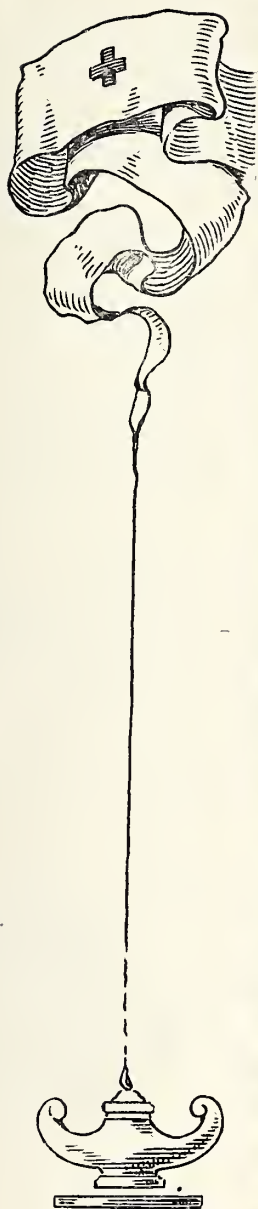
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is perfected and ready for the market and will be illustrated in the January Park and Cemetery.

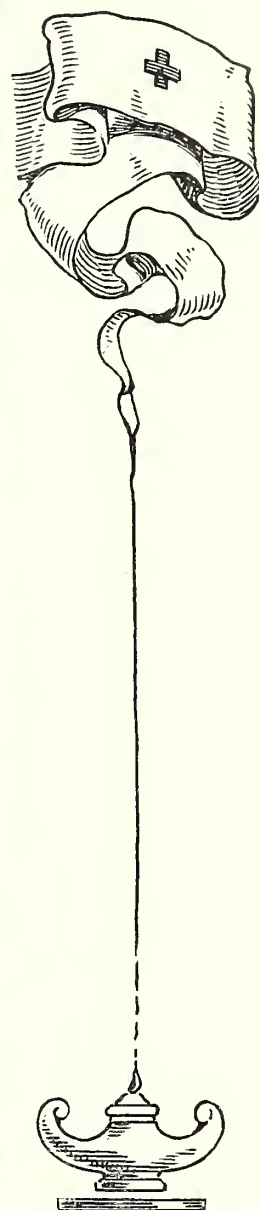
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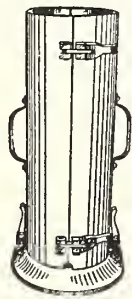
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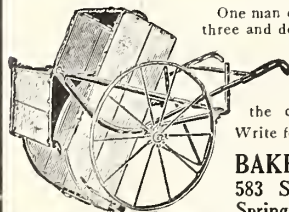
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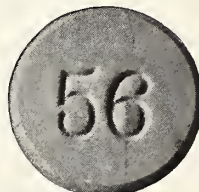
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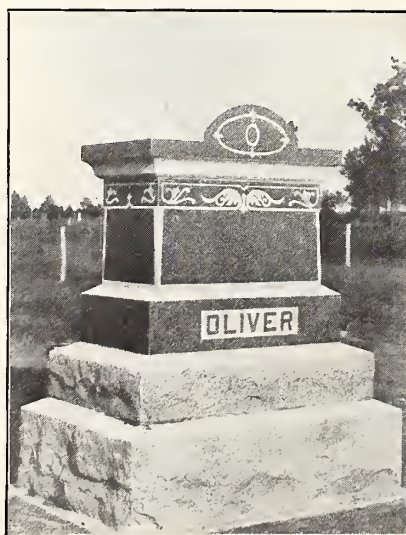
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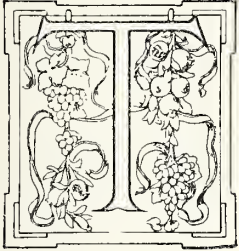
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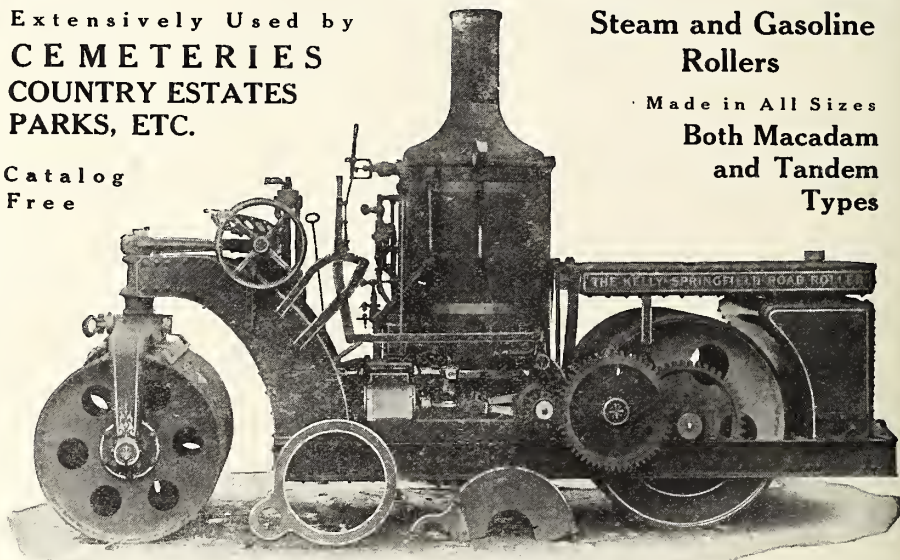
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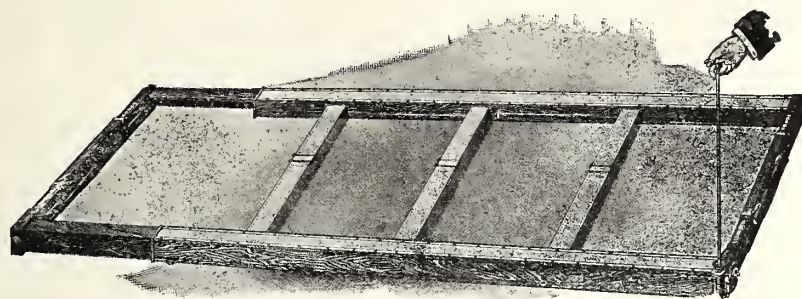
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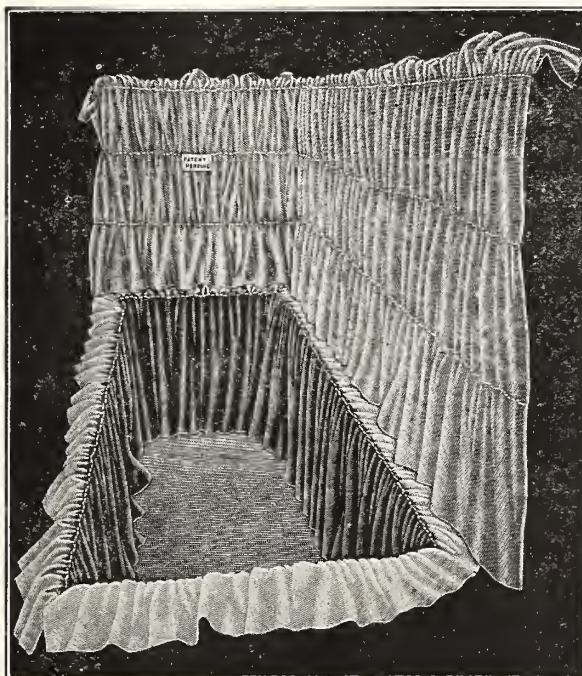
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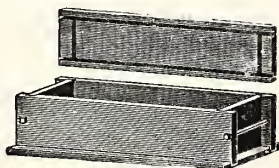
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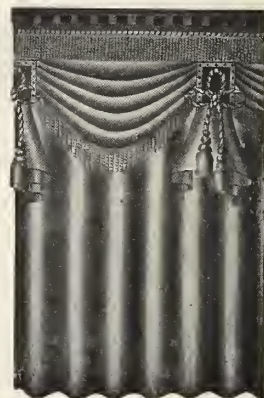
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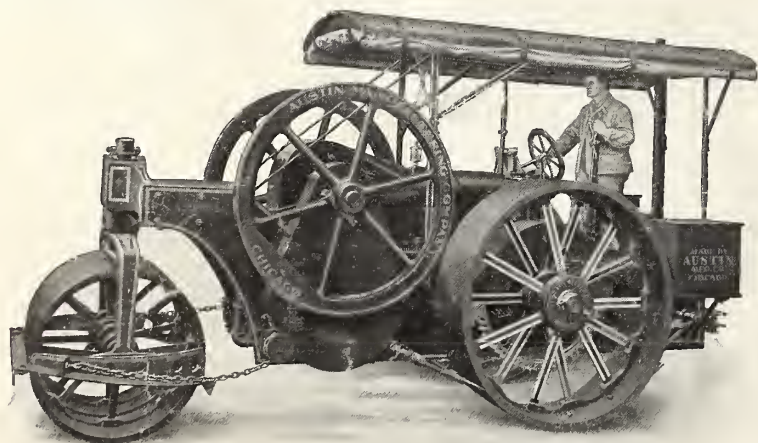
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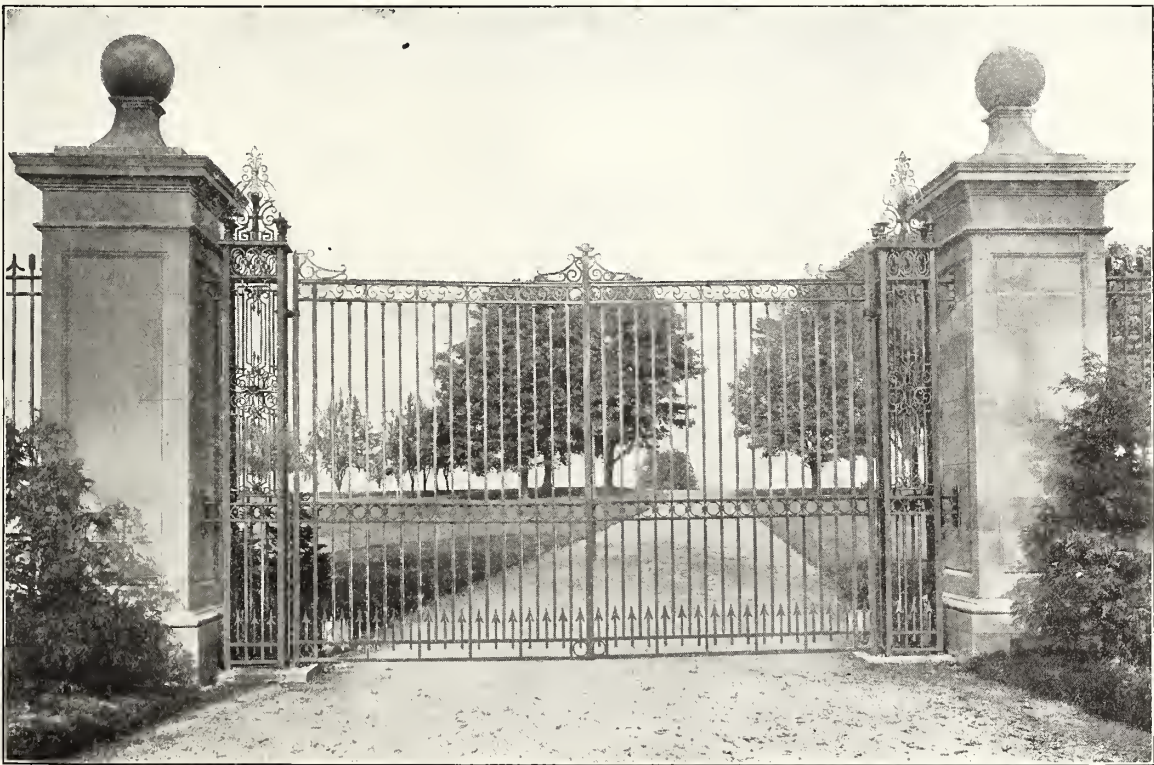
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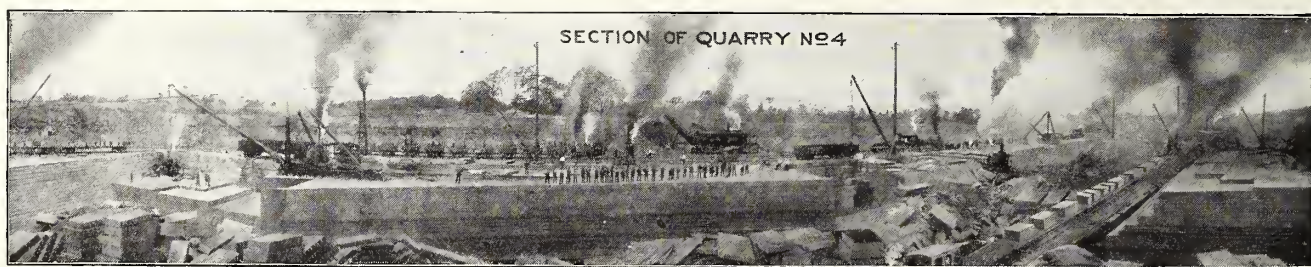
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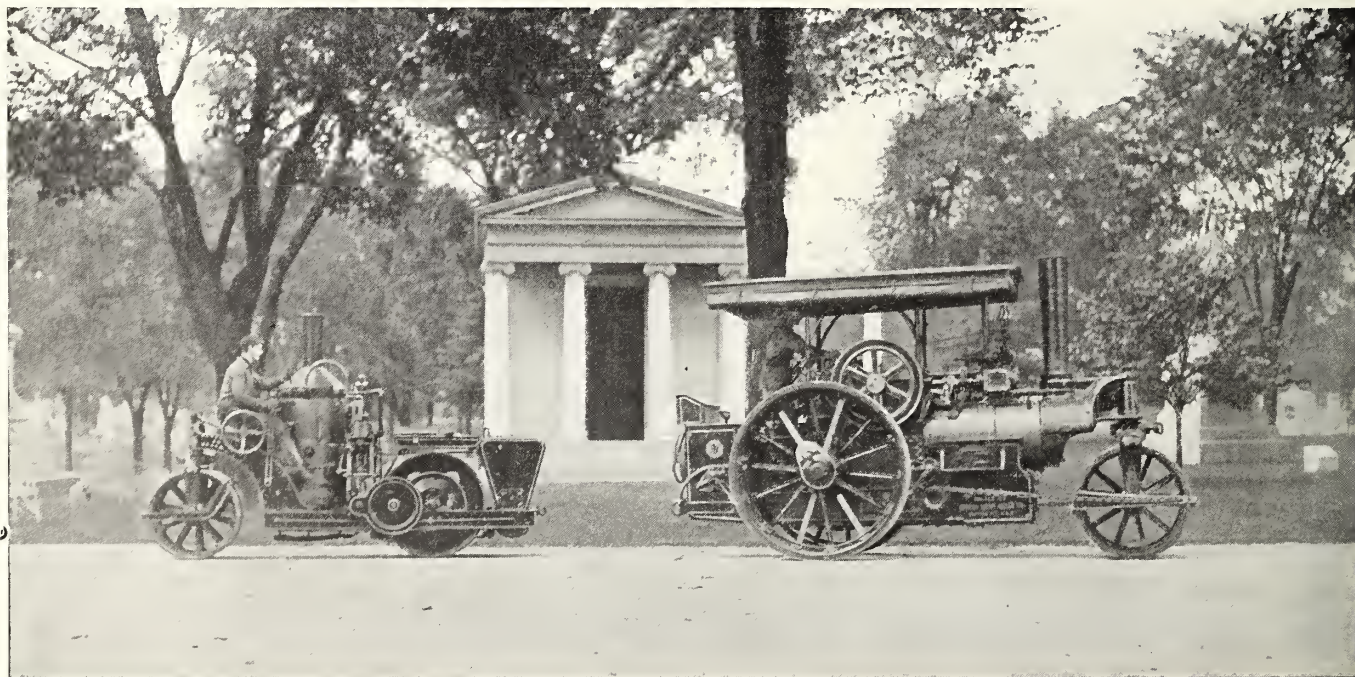


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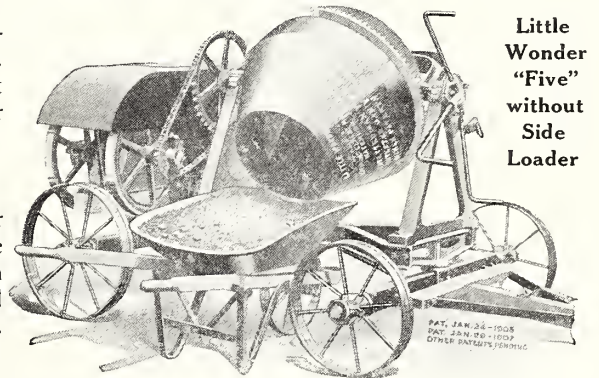
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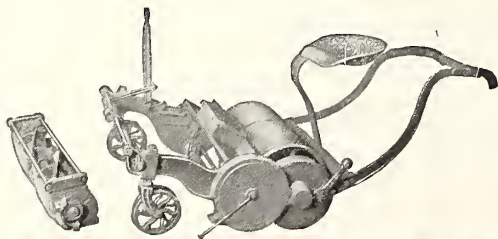
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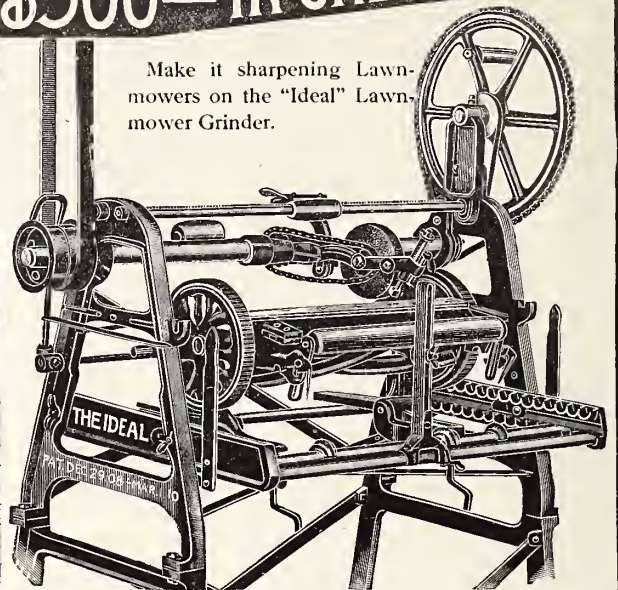
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EDITORIAL

Organization To Study Forest Insect Problem

The enormous losses due to forest insects have led to the formation of a society for the advancement of forest entomology in America. The members of this society hold that the work of insects has not received the attention which it deserves. Henry S. Graves, United States forester, the newly elected president of the society, says that the purpose of the organization is to call attention to the part which insects play in forest problems. "We have had," he said, "widespread and specific interest in insect pests such as the San Jose scale and the boll weevil, which affect all of us as to what we eat and what we wear. Forest insects, through their destruction of timber, increase the cost of a necessity which enters quite as much into the daily life of the individual as do the products of the field and orchard. If the importance of the protection of our forest resources from insect depredations is generally recognized, a large part can be prevented or avoided."

In the national forests the bureau of entomology and the forest service are co-operating to stop insect ravages by discovering their beginnings, and stamping them out. A few isolated trees attacked by insects may form the nucleus of a mountaineous devastation quite as serious as that from a forest fire. Watchful care on the part of forest officers, lumbermen and private individuals will make it possible to catch these infestations before

they get a good start. By cutting and burning the trees, or stripping off the bark, these insects can be killed. Membership in the organization is open to anyone interested in the subject. New members are to be recommended by the present membership, which is made up largely of persons who have studied the forest insect problem at first hand. In order, however, that the objects of the society shall be kept foremost, it is required that at least four of the seven officers must be chosen from among professional forest entomologists. It is expected that honorary vice-presidents representing federal, state and private interests will be elected to promote the objects of the organization in many localities through the country. The objects of the society are largely educational. As in all questions of large public importance, the main idea is to give the public an opportunity to know just how important they are. In the second place, the society will form a clearing house for information, and its meetings will discuss the most advantageous methods of insect control. Take, for example, the ravages of the gypsy moth and the brown-tail moth in the North-eastern states. If we can bring about a general knowledge of these insects and of the harm they do, and are able to instill into the mind of the individual the necessity for and the proper methods of their control, how much easier it will be to combat them than when the work is confined only to governmental agencies!

Experiments In Direct Seeding Of Pines

Pine seed sown directly in the spots where the trees are to grow is yielding good results in young trees on the Tahoe National Forest in Western California, according to a recent report of the forest service. This is in marked contrast to the usual results in such cases, because squirrels, mice and birds will eat the seeds where they are planted without protection, and even when these enemies allow the seed to germinate the drying out of the soil in drought periods is usually too much for the tiny seedlings during their first season. Because of these vicissitudes, foresters usually find it advantageous to grow the seedlings in nursery beds, where seeds and plants can be protected by wire screens and shade frames, and where water can be applied when needed. Usually, too, the seedlings are transplanted once or twice before they are set out in their final situation, the transplanting process

serving to develop stocky plants with compact sturdy roots. While the nursery bed and transplant process involves more work, it is said to be generally cheaper in proportion to results accomplished, particularly when the cost of seed is taken into consideration. The California experiment, which indicates the possibility of direct seeding of certain species in some localities, was conducted on an area of twenty-two acres, sown in the fall of 1910 to Jeffrey pine. A large number of seedlings have become thoroughly established and have made thrifty growth. The plantation is at an altitude of 6,000 feet, where there is more moisture than at lower elevations. When the seeds were planted they were coated with red lead to discourage mice and other rodents, but so far as the forest officers could find out, the lead coating had no such effect; not enough of the seed was eaten, however, to destroy the value of the planting.

Editorial Notes

The forest service collected 40,000 pounds of tree seed last year for use in reforestation work. The total area reforested was about 30,000 acres.

There are sixteen maples in the United States, most of them being Eastern species. The most valuable, not only because of the product of its sap but also of the lumber, is sugar maple.

In twenty-six states there are state foresters who co-operate with private timber land owners in solving forest problems.

The forest service maintains nine experiment stations for studies in reforestation and similar subjects.

The bureau of entomology and the forest service, working together for the control of forest insects, last year covered more than 160,000 acres in their operations.

Torrey pine, a distinct California species, has been found in only two isolated localities in the southern part of the state.

One hundred acres on the Florida National Forest will be sown to maritime pine seed this fall. Maritime pine is the source of the French turpentine industry.

The Republic of Colombia is said to have excellent regulations for its national forests. Lumbermen who take cedar and mahogany are required to plant young trees of the same species in the cut-over spaces.

One of the largest forest nurseries in the United States is conducted by the forest service near Haugen, Montana. It is known as the Savenac nursery and has a capacity of 4,000,000 young trees a year.

The forests of Norway are mostly in private or municipal ownership, the nation owning 28.5 per cent of the total forest area. The national forests of the United States occupy only about 20 per cent of the total forest area of the country.

THE CAROLINA POPLAR AS A CITY SHADE TREE

For and Against; By A. T. Hastings,
City Forester, Jersey City, N. J.

The two fundamental problems that confront the city undertaking the further beautification of its streets and avenues with trees are the planting and maintenance of new trees and the treatment and care of existing trees.

The planting of the proper varieties of young trees can be absolutely controlled by city authorities. By means of ordinances and their enforcement it can so control the planting of new trees that only the varieties most suitable will be used. By careful and efficient study of existing trees, noting particularly those varieties that flourish and are ornamental and useful in spite of the necessarily adverse conditions of a city will give a positive and decided answer to the question, "What varieties to plant?" On the other hand, the trees that are found to be weak, full of dead wood, badly attacked by insects and disease, or weakened by soil or climatic conditions, or in any other aspect found to be wanting in beauty or usefulness, will amply answer the question, "What varieties not to plant?" A proper choice of varieties when planting new trees will to a great extent for future

generations eliminate the problem of caring for trees of an unsuitable variety. But in the treatment of old trees no such choice can be made. The trees are there on the streets, many of them there for years, and the city must necessarily consider them in their present condition. By proper and efficient treatment the appearance and the health of the old trees may be greatly improved. Pruning, cultivation, fertilizing, watering, spraying, removing of external agencies detrimental to growth, are all agencies to be employed with success. Each separate variety calls for specific treatment. The remarkable growth of interest in shade trees throughout this country has resulted in the rapid spread of knowledge on this subject.

In many of the large cities of this country, particularly in the East, the Carolina poplar, as it is commonly known, is found growing on the streets by the thousands. In Jersey City, N. J., there are close to twenty-five thousand Carolina poplars growing upon the streets out of a total of nearly forty thousand. Therefore, the question of the Carolina poplar as a city shade tree is pertinent.

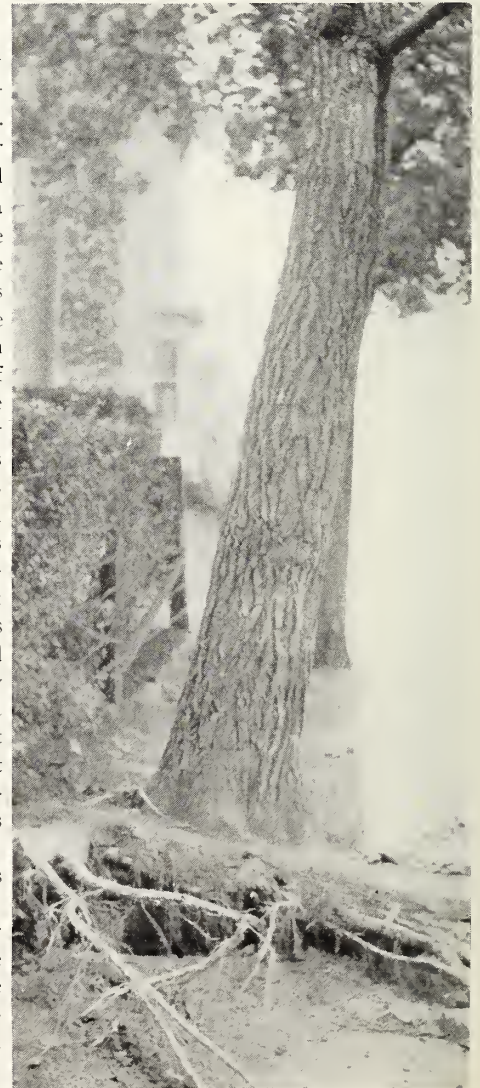
The Carolina poplar has been so universally used because it is very easy to propagate, is very cheap, and very fast growing. A broken branch of an old Carolina poplar stuck into the ground will take root and in a few years transform itself into a healthy, growing tree. I can hear now the appeal of many people, "Oh, I want a tree for myself, not for my children"; "This tree came from a branch of that old one over there"; "So-and-so grew this tree in his back yard and gave it to me; most of the others on this street came from the same place"; "I can get a poplar for fifty cents and you want three dollars for a Norway maple." Such statements as these are heard everywhere and show very clearly why the poplar is so extensively used. The Carolina poplar is a very peculiar tree; it is a fast grower, but is short lived; the branches spread out rapidly, but are very brittle and therefore in large trees dangerous, as they are liable to snap off during high winds. The leaves fall early in the summer, but have a peculiar varnished surface that prevents the smoke and dust of a city injuring them. It is shallow rooted, but has an enormous and persistent root growth, the roots often extending into basements and sewers. It is cheap in the beginning, but expensive in the long run. It has a few characteristics that make it an ideal tree for city conditions, and at the same time many characteristics make it the very poorest, and these far outweigh the good points, for city conditions. It is an ideal tree for factory districts where the foliage of trees must withstand the smoke and dirt

peculiar to such districts. Here it finds its only true place among city trees.

However, whatever may be the specific values or defects of the Carolina poplar, the fact remains that the trees are on the streets in large numbers and in all degrees of size and usefulness and the city authority must pursue a determined policy of treating them or of eradicating them entirely. Right here arises a perplexing problem for the authorities to solve. The quickest and surest way of settling this question once for all is to remove the trees entirely as fast as possible; to chop them all down, good or bad, and to replace them with more suitable varieties. The pursuit of this policy would cause a near revolution amongst those citizens who regard their trees as a part of their homes. Those who have seen a young tree planted, and have seen it grow, year after year, until it has become to them a source of pleasure, would naturally protest against any policy that would seek to destroy this tree. There is no doubt that the city at large



POPLAR BLOWN OVER AND STURDY NORWAY MAPLE UNTOUCHED.



SHOWING SHALLOW ROOTS OF POPLAR.

would ultimately greatly benefit by the results of the operation of this policy, but it would require an assertion of dominance by the city authorities over the will of the

trees are growing, an educative scheme of teaching the value of shade trees could be inaugurated, and by the time the young trees have a good growth the property

ure remains, and that is of so trimming the poplars as to lessen their bad effects and to prolong their usefulness. There are many variations of opinion among tree men as to the advisability of trimming poplars and also as to how the trimming shall be done. I believe that if the poplars are allowed to remain on the streets they should be severely cut back as soon as they are over eight inches in diameter. This, I have found, entirely removes the danger of the blowing off of large branches during high wind storms as well as the blowing over of the entire tree. It also results in larger leaves and less of them, and they stick on much longer in the summer season. It changes the growing of the tree from an open head to a close-growing head. In short, it changes a very unsightly tree into an ornament and to a large extent increases its usefulness. Such trimming is, however, a very costly proposition for any city, as it is slow, exact work and must be continued year after year on each tree or the tree will soon revert back to its original condition. A proper trimming of oaks, elms, maples and such trees will be sufficient treatment for many years, hence the cost of such trimming is comparatively slight.

A combination of the three methods just mentioned would perhaps produce the best results. Remove them where possible without antagonizing the citizens, on other streets planting new trees between the old trees preferably inside the sidewalk if the



EARLY FALL OF LEAVES FROM CAROLINA POPLAR; PICTURE TAKEN AUGUST 2

people which, in my opinion, is to be deprecated. However, several large cities are at this time doing this very thing with good results.

A far better method to pursue is to cause young trees of a suitable variety to be planted between the poplars already growing, trimming the low branches of the poplars if necessary, or even removing a tree entirely where they are too closely planted to allow of the planting of a young tree. For the next few years, while the young

owners would gladly concur in the removal of the old poplars. The pursuing of this policy would produce wonderful results, as the lesson of undesirable trees and why they are undesirable, versus desirable varieties of trees and why they are desirable, taught by living examples as well as by personal argument, would instill into the minds of the people, clearly and concisely, the more or less technical points whereby one variety is suitable and another is not.

One other separate method of proceed



POPLAR ROOT 29 FEET LONG; IT ENTERED SEWER FIFTEEN FEET FROM THE TREE.

poplars are on the outside, and lastly trimming all the old poplars as fast as possible.

(To be continued.)

A Bas Le Poplar?

From Newark Shade Tree Commission Report.

Sorry are we to say a hard word against any tree whatever. But, in very truth, sentence of exile must be uttered against the poplar as a city street tree. Not to cite other offenses, it does play "hob" with sewer pipes. This is good, of course, for our friend, the plumber, entailing largess unto him, but for our other friend, the property owner, it means a decreasing of his store of shekels. We say nothing of the unsanitary conditions arising from broken sewer pipes and stalled sewerage. Suffice it—the poplar (affectionately called "pop") must go. Accordingly, during the year, we caused the removal of a number of trees

of this variety, and none were set out by us except a few in a factory district where no sewer pipes were jeopardized and where no other variety of tree would grow.

The accompanying picture will "give an idea" of why "Brother Pop" must go. It illustrates a noteworthy case. A poplar tree, planted about ten years ago, stood fifteen feet from a sewer. The sewer was an eight-inch vitrified pipe. A root of the poplar found its hungry way into the pipe. It liked the habitat, settled down to a good time, gorged itself on the sewage, and waxed big in bulk and girth. Now, the sewer was a main, so that not merely one household, but the entire neighborhood, was afflicted with clogged sewerage. Imagine the odoriferous and sweetly hygienic result. Imagine also the placid feelings of the populace. In fancy hear ye not the echo of their outcries? Well, sirs, the sewer department had to find out what the matter was. They found it—found "the root

of the matter," so to speak—that gluttonous and piratical poplar root. For a distance of ten feet it filled the main completely and then tapered to its end. Contrary to practice, it had not tried to find its way out through pipe intersections. This is a favorite trick of the poplar root and thereby it anchors itself. Anyhow, there it was, all snug enough, but unfastened, so it was comparatively easy to pull it from the pipe. Engineer Rankin, of the sewer department, said it was the largest root of which he had any record in his archives of sewer work. It was cleansed of the mud and solidified muck which had accumulated about it, encasing it. Then it was photographed. When held by two men for this purpose, it looked like a monster fire hose. It weighed some one hundred pounds.

The poplar as a street tree, must it go then? Yes, children, the poplar as a street tree must go.

BRIEF REPORTS ON SHADE TREE SPRAYING

Massachusetts.

The only insect which has been of serious consequence on shade trees in our vicinity for the last year or two has been the elm-leaf beetle. We are thus far just out of the range of the gypsy and brown-tail moths. In dealing with the elm-leaf beetle we find that early spraying with arsenate of lead is the best practice. We have been using a small sprayer for this work and have found it fairly satisfactory. We believe, however, that in city and park work the larger and more powerful machines are to be preferred.

F. A. WAUGH,
Amherst, Mass. Mass. Agl. College.

* * *

New York.

The Tussock moth caterpillars were present in some sections of Buffalo. They were not numerous, however, and for the most part the trees were kept in good foliage. The past five years has virtually changed the aspect of the city's trees—as at the present time it is unusual to see a street tree entirely defoliated—whereas in previous years it was no unusual sight to see a whole street barren of foliage in June and July.

I have come to the conclusion that we can never eliminate the pest entirely, as there is no general spirit of co-operation on the part of property owners to destroy the caterpillars on trees within the property line. Buffalo is a city of trees, and every home has from one to fifty trees surrounding it. There is not more than one person in twenty who makes any attempt to destroy the caterpillars on his own grounds, hence these yards continue to be a constant breeding place for countless millions of ravenous caterpillars, which increase five hundred fold each generation. They soon find their way to the street trees

after they have devastated all of the foliage in the yards. This is to be regretted. Time and time again sporadic outbreaks in certain sections of the city can be traced to trees on private property. The Tussock moth is a very prolific breeder and will multiply a thousand times each succeeding generation.

In the absence of the power to spray trees on private property, it becomes necessary for us to spray the street trees wherever it is needed, owing to the general apathy on the part of the average householder. This, however, is not a great expense and is uniformly successful, unless the work is too greatly hampered by high winds and heavy rains. These forces sometimes necessitate going over the work a second time. The spraying campaign was followed up by gathering and destroying the cocoons and egg-masses, wherever they could be found—on trees, fences, houses, etc.

Owing to the extremely dry summer of 1911 the maple and elm trees became quite badly infested with aphids. This pest was present in great numbers and caused premature falling of the leaves. It became necessary to spray some of the trees in July and August in order to preserve the foliage.

This insect pest, while not as a general rule harmful to the trees, nevertheless caused much extra work in order to satisfy the people that we had it under control.

H. B. FILER,
City Forester.

Buffalo, N. Y.

* * *

Elm-leaf beetle, Tussock moth, hickory-bark beetle, two-lined chestnut borer, oyster shell scale and leopard moth have been very injurious in this vicinity; Cecropia and eguthia moths, bog worm, tent caterpillar, phenococcus acris, cottony maple scale, tu-

lip scale and golden oak scab have been prevalent, but not so serious; there have also been slight infections of thrips, San Jose scale and scurfy scale. I spray from May 25 to July for caterpillars, etc., feeding on foliage; spray in early May for most of the sucking insects; also use lime and sulphur in winter. I use gas and gasoline spraying machines, but mostly the former, operating by compressed air. Use arsenate of lead prepared to suit my own formula for all leaf-eating insects; kerosene emulsion, whale-oil soap, lime and sulphur and scalecide for sucking insects, and carbon bisulphide and a knife for all boring insects.

J. J. LEVISON,
Forester, Park Dept.

Brooklyn, N. Y.

* * *

North Dakota.

Cottony maple scale has been prevalent in this vicinity. We spray with kerosene emulsion, 1 to 8, in early spring, before leaves appear. Used barrel sprayer on wagon. Treatment successful.

We pruned or cut out the tops of box elder trees that had been attacked by a fungus (*Septoria sp.*) and sprayed with corrosive sublimate. Nearly all of the trees in three different towns were treated.

AGRICULTURAL EXP. STATION.

Fargo, N. D.

* * *

Cottony Maple Scale in Illinois.

The cottony maple scale is an insect that for the past ten years has been a serious enemy to thousands of beautiful and valuable trees in Chicago. The pest has also done serious damage to shade trees in other sections of Illinois, particularly in La Salle, Will, Lake, Winnebago, McHenry, Cook, Kane, Dupage, Ogle, De Kalb, Bureau, Henry, De Witt, Montgomery and Sangamon counties.

The food plants of the scale are numerous, the most important being the soft maple, linden, box elder, elm, oak, willow, poplar, beech, hawthorn, sycamore, locust, hackberry, osage-orange, mulberry, grape, poison ivy, Virginia creeper, rose, gooseberry, currant, peach, plum, pear and apple.

In dealing with the insect, state the entomology experts of the Department of Agriculture, it is necessary to consider in each case the advisability of artificial means of controlling it. In some localities the natural enemies of this pest have done very efficient work, making in many cases applications of remedies inadvisable. The Illinois Experimental Station states that the scale appears in great numbers at intervals of eight or ten years.

The infested trees, advises the department, can be treated during the dormant season with a strong solution of kerosene emulsion without any injury to the trees. This emulsion used at 25 per cent or more in strength, or whale-oil soap at the rate of one pound to a gallon of water, has been reported to be very effective in killing the scales hit by the spray.

In spraying during the period when the trees are in foliage a weaker solution must necessarily be used. It is not safe to use kerosene emulsion stronger than a 10 to 12 per cent oil, and even at this strength there might be a slight injury to the foliage. It has been demonstrated that a single application of a 10 per cent kerosene emulsion applied at the proper time in summer will destroy about two-thirds of the recently hatched insects, and two applications, one applied at the middle and the other at the end of the hatching period, will destroy four-fifths of them.

The young insects of the scale hatch during the months of June, July and August and migrate to the foliage, where they settle along the midribs and veins, always preferring the under surface. The male larvæ, when fully mature, assume a propupal state from which they later pass to the true pupal stage with a pinkish hue. Shortly after, the winged males appear, but remain beneath the scale for two or three days before emerging. At the beginning of the flow of sap in early spring the female grows rapidly.

Utah.

A large number of trees, especially the ash, Lombardy poplar and lilac bushes, etc., are infested with the oyster shellbark lice, forming a crust nearly the color of the bark and therefore not so easily detected, a pernicious scale, crusting the underside of the limb and branches with a grayish coat.

These are the only insects we have to combat in our shade trees. Our roses are liable to mildew, a white coat appearing on the leaves and stopping respiration and damaging the plants. Slugs sometimes infest plants and trees, considerable damage being done. Aphis lice, green or black,

and also the woolly aphis on apple trees are quite troublesome.

Ants are often a nuisance in our garden and cut worms may cause very much damage. Experience has taught us the remedy to use in order to successfully fight these pests and we have found the following to be of great value:

Copper solution: For blight and mildew: Use 1 pound copper sulphate, blue vitriol, 1 gal. water. Suspend in sack at bottom of water in barrel. Keep in air tight jars. This forms the stock solution. Slack lime, 5 pounds with 4 gallons of hot water and add water to make 30 gallons. Add this through a strainer to the stock and add water sufficient to make 45 gallons. Use when trees are in foliage. Use same solution in winter but without lime. Used for mildew on roses, etc., when in foliage.

Copper Carbonate Solution: Use copper carbonate, 5 ounces, ammonia 4 pints, water 45 gallons. Make paste of carbonate with a little water. Dilute ammonia with 3 gallons of water and add the paste and stir until mixed sufficient with water to make 45 gallons. Use on tender plants, etc. Also for mildew on any plants. Potassium, use 1 ounce, water 2 gallons and mix. Spray several times, especially for roses under glass.

Kerosene Emulsion: Use soap, 1 pound, kerosene 2 gallons, hot water 1 gallon. Boil soap and water until mixed, add kerosene and pump back and forth through pumps until mixed to a cream. Dilute with 10 times as much water. In this mixture milk is preferable to water. For sucking insects, (scale and aphids).

Lime and Sulphur: Sulphur (Utah non-granulating) 15 pounds, fresh unslacked lime, 30 pounds and water, 45 gallons or 1 barrel. Place lime in large vessel and sulphur in another. Pour 2 gallons of boiling water and stir until a paste. Pour over lime 8 gallons of boiling water and add sulphur paste. Stir and slack all this together. Boil briskly until chocolate brown in color and add hot water until barrel is full 45 gallons. Strain and apply. Best and only effective winter spray for all insect eggs, worms and scales.

Spray mixture for tree diseases: For apple worm use 1 pound Paris green and 150 gallons water. To prevent hurning add 1 pound lime, fresh slacked. Make paste of green and mix and stir in water. Used for all eating insects.

White arsenic: White arsenic, 1 pound; washing soda, 4 pounds; water, 2 gallons. Boil together until dissolved to make the stock solution, add of this stock 2 quarts and 2 pounds of freshly slacked lime to 50 gallons of water. Or lead arsenic, 6 pounds; water, 120 gallons. Mix cold.

For slugs: dry ashes or air slacked lime, or both mixed. Scatter on trees and plants to kill slugs.

For cut worms: Mix teaspoonful of Paris green with a quart of bran and put on ground around the plants.

For ants: Carbon bisulphide soaked in pieces of cotton rags and put into the ant hills.

N. BYHOWER,

Superintendent of Parks.

Salt Lake City.

Spraying Suggestions.

Spraying in parks or cemeteries is not different in principle from that followed in orchard spraying. Strong spraying machinery, however, would be necessary in the case of higher trees. Two or three firms make a specialty of building power outfits for use on high trees.

Park spraying naturally divides itself into winter spraying and summer spraying. During the dormant season scale washes are used for the destruction of any scale insects present, and summer work is largely confined to application of arsenicals to foliage for the destruction of leaf-feeding insects.

A. L. QUAINANCE,

Bureau of Entomology.

Washington, D. C.

Texas and Southwest.

Texas and the Southern states are one great hibernating place for all insect pests, as this warm climate is as an incubator for them. We find the following insects that abound here throughout the state of Texas and also Louisiana.

The most injurious and common pests found in pecan orchards are the pecan case bearer, pecan catola, pecan bud worm, and a large variety of caterpillars, which not only defoliate the trees, but also do direct injury to the nut itself.

The oaks—all of them—are attacked by the oak borer, oak pruner, oak-leaf pruner, oak beetle, oak-leaf gall, twig borer and girdler, oyster shell scale, also San Jose scale and leaf blister mite.

The elms: The white variety is attacked mostly on account of the sweet sap. The shot-hole borer is very bad here, also the elm-leaf beetle, oyster shell scale, scurfy scale, elm borer, gypsy moth and elm twig borer. The box elders, hackberries, poplars, cottonwoods, all are infested with common borers and oyster shell scale.

Fig trees have for the last three years suffered a great deal and it is a discouraging proposition to raise them. The following diseases and insect pests prevail: Fig anthracnose, fig canker, fig limb blight, rust, soft rot, die back of twigs, leaf spot and nematode root galls, fig borer.

The maples, as far as they have been raised here, are a sorry looking lot, as the hot sun bleaches out the leaves. The maple borer, oyster shell scale and woolly maple bark louse are their destroyers.

Attention has never been thought of until here of late years. The past three years I have been continually urging the people through the newspapers and warning them to take care of their trees. I am the first one that ever came to Texas with tree work. The pecan trees that abounded here in plenty years ago were ruthlessly cut down and burned upon the place to make room for cotton growing.

The sprays I use for the insects are mostly those for sap-sucking insects in fall, such as oyster shellbark louse or scale, San Jose scale, shothole borer, lime and sulphur solution. Fall remedy: One part solution to 40 gallons water, just before the eggs hatch, to kill the young. The eggs hatch after the leaves are out. For the various scales in spring: One part solution to eight parts of water, while the trees are dormant. For the various leaf-eating insects: Arsenate of lead, 15 per cent, 3 to 6 pounds to 50 gallons of water; whenever these insects are in sufficient number to be destructive. For fungi: Copper sulphate, iron sulphate, ½ pound to 5 gallons of water and accordingly. Also lime and sulphur solution, one part to eight parts of water. This pertains only to shade trees.

O. P. DAHLKEN.

Dallas, Tex.

COMPLETE DEVELOPMENT OF A MODERN CEMETERY

By OTTO SONNE,
Landscape Engineer.

I. Selection of Site and Preparing Ground.

The construction of a cemetery at North Arlington, N. J., for the Roman Catholic Diocese of Newark presents some interesting features, partly an account of its size—200 acres—and partly because the work covered the entire range from beginning to finish of changing an unimproved tract of land into the condition of serving its new purpose without influence from older plots, roads or other existing conditions. Therefore, as the diocese was ready to develop the tract as a whole, the problem could be approached and carried out unhampered and in the right way.

The original character of the land varied considerably. About one-third was open farm land, but for some years out of use and left to produce a notable growth of weeds and bushes. The remaining two-thirds had at one time been covered with large trees, but had been cut over more or less thoroughly some years back, leaving about one-half still with tall trees, the rest with a bushy crop of birches and other trees, perhaps fifteen years old, among which were a number of oaks and hickories, well worth saving. The entire two-thirds, however, had left on it a generous supply of stumps, large and small, from the first cutting.

The first step of all, and a necessary one, was to make a topographical survey to determine the configuration of the ground. Precise levels were taken to the surface, 25 to 40 feet apart, according to whether the ground was irregular or quite smooth and even. Besides every tree four inches or more in diameter was located, water courses, surrounding highways, etc. In order to do this stakes were driven at irregular intervals and from each the surrounding area was covered with transit sights and levels. They were placed close enough together to allow the entire grounds

to be covered in this way—*i. e.*, several hundred feet apart in the open and as close as 100 feet in the wooded sections. Where possible, the stakes were located by triangulation, otherwise by carefully measured angles and distances, so that when the survey was finished the location—coordinates—of each was known to within a few hundredths of a foot, and served as a basis from which all roads and other intended structures could readily be staked out. On the plan contour lines were drawn showing the elevations with one foot intervals and giving at a glance the rise and fall of the ground, and thereby the locations favorable or prohibitive for roads with easy grades and curves. One general plan was made on a scale of 100 feet to an inch and a working plan in eight sections on a scale of 30 feet to an inch.

On the basis of these plans the design was made by the writer, and when it had been submitted to the diocese and approved, the work of construction was given to the Fairfield Landscape and Nursery Co., New York City, in May, 1912, and has been under the personal supervision of George J. Pearson, the president and general manager.

Naturally, grubbing and clearing was the first item on the list to be tackled. Where roads or other structures were to go in, all growth and organic matter had to be removed, and outside of the roads considerable thinning had to be done. The brushy birches, etc., were nearly all removed, only a cluster left here and there, and such desirable young trees as were found to grow among them. Even the older trees needed a vigorous thinning, as they had been badly neglected and interfered with each other, with the result that a large percentage of them consisted of only a tall trunk with a tuft of foliage at the top, and the

cutting out required much study of the appearance of individual trees, grouping, etc.

More troublesome than the cutting of trees and brush was the removal of the innumerable stumps, some of them thirty inches or more in diameter, some quite green and some half rotten.

The original appearance of the growth is fairly well indicated in the illustrations. One view is a winter picture of the younger growth calling for an emphatic thinning out. No. 3 and No. 4 show the original appearance and at the same time some work of development going on, roadways being cut out, etc. On No. 4 will be noticed the undesirable shape of the individual trees already referred to, a stick with a tuft of foliage, which is unavoidable where the growth has been for a long time left to itself.

This removal of the smaller growth was simply axe work and digging of roots. The larger trees were in some instances cut down and the stump removed later, and, in some instances, where it could be done without injury to neighboring trees, a stick of dynamite under the tree disposed of tree and stump at the same time—as shown in illustration No. 5. The heavy work was the taking out of large stumps, and some discrimination was needed on account of varying size and soundness. The soft and spongy ones had to be dug out piecemeal; the big, sound ones yielded to nothing but a stick of dynamite, but then they did yield, and between these two extremes various methods were applied, such as pulling out the stumps with a windlass after some digging and axe work (illustration No. 3) or pulling them out with a heavy traction engine.

The item of grading consisted in the main in removal and replacing top soil, grading of roadways, of lawns, deepening



NO 2. WINTER PICTURE OF THE YOUNGER GROWTH THAT NEEDED THINNING OUT.



NO 3. SHOWING ORIGINAL CHARACTER OF THE TRACT; PULLING STUMPS WITH WINDLASS.



NO. 5. FELLING LARGE TREES AFTER DYNAMITING.



NO. 6. DYNAMITING A LARGE STUMP.

of brook and trench work for drains, water pipes, etc. The top soil, of course, was stripped from the areas to be occupied by roads, paths and other structures, and also from such parts of the lawns as were to be raised or lowered. This top soil was piled in convenient places, awaiting the time when the grading of lawns, etc., was completed and the surface ready for its final distribution. It happened here as in every other case with which the writer is familiar, that although theoretically there should be a surplus of loam amounting to the quantity taken from the roads and paths, there was not quite as much as could be desired, and economy and care were needed to make it go round.

The grading of roads and paths was a comparatively small item, considering quantity only, owing to the care with which the roads were designed to fit the ground and placed where easy grades and curves could be had with very little earth work, thanks to the carefully made topographical plan to work from; but it was the part that required the most care and skill on account of the strict demands for accuracy in grade, alignment, crowning, etc., to which reference will be made later. More formidable was the grading of lawns, both along the edges of the roads to make them join the grades of the latter and in places where humps and hollows made some changes desirable.

Some low places, apt to retain water, were filled, but some rather extensive depressions were left, as their filling would represent a serious immediate outlay for grading.

According to the nature of the ground, a catch basin was built at the lowest place and connected to the drains, or the porosity of the ground was left to take care of the water unaided. In course of time these depressions may be filled with surplus material from other parts of the cemetery, cellars, graves, etc.

A surprisingly large item in the grading was the filling in of holes left by the taking out of stumps. They formed de-

positing grounds for all the fill that could readily be procured, and their final surfacing was the main cause of the dwindling of the loam pile.

The bulk of the excavation came from the deepening of a brook running lengthwise through the cemetery and forming the main outlet for all surface drainage, which will be described later.

Originally the brook ran in a very slight depression, in places hardly noticeable; but, of course, the deeper it was cut the better the drainage and the less area along the brook would be unfit for use as burial lots. Besides, as at times there is a considerable flow, it is desirable to have as much head room as possible in the culverts or bridges under the roads.

A general plan of the cemetery, which will appear in a later number, shows the brook and several widenings forming ponds, made both for the sake of appearance and for storage of water during the minimum flow. So, altogether, the brook work counted up the most in cubic yards. As to methods of grading, then, there is nothing remarkable to relate; with no very

long hauls, scrapers and wagons were sufficient to take care of all problems.

(To be continued.)

New Cemeteries and Improvements

Wethersfield, Ill., has voted to issue bonds for the purchase of additional ground for the Wethersfield Cemetery. The tract is situated directly south of the present cemetery and contains five acres.

Oakland Cemetery, Little Rock, Ark., is erecting new entrance gates. Recently the board made elaborate preparations for the improvement of the cemetery. W. G. Cummings, a landscape gardener, has been busy for some time terracing the grounds and straightening the monuments. James Lawson is secretary of the board.

The new gate to Mt. Olivet Cemetery, Pineville, La., has been completed by the contractors, the Hudson Construction Co. The gate is a wrought iron double gate with bronze locks and bearing the name of the cemetery in a circle across the main gate. The double gates are five feet wide, making an opening for the driveway of ten feet. The two side gates are each four feet wide.



NO. 4. CHARACTER OF TREE GROWTH, SHOWING UNDESIRABLE SHAPES OF TREES.

OFFICIAL COMMUNICATIONS

H. S. RICHARDS, Chicago, President



AND CONTRIBUTIONS

J. J. LEVISON, Brooklyn, N.Y., Sec.-Treas.

PARK TREES AND SHRUBS OF MEDICINAL VALUE.

By L. P. Jensen, Member A. A. P. S.

The park superintendent is, or ought to be, a public educator on all subjects which may bring forth a wider interest and appreciation of the useful and valuable properties in his charge.

Chief among these interests are undoubtedly the ones relating to trees, shrubs, vines and herbs. The public is becoming more and more interested in the study of nature and in the appreciation of plants, their cultivation and habits. The more information the park superintendent is able to give the public regarding the interest and usefulness of his parks and their contents, the more popular he and his parks will become, and this will, of course, on the other hand, stimulate his own interest and pleasure in the performance of his work.

It is not enough for him to know all about the growth and habits of his plants, because this is essential to success in his work, but he should also know something about the history of the plants and the various uses to which they may be put economically as well as artistically, so that he may be able to tell the people many little known facts about the various plants in his parks, and thereby induce the public to visit the parks for study as well as recreation and rest.

One subject of great interest in this respect is that of the medicinal value of plants, the knowledge of which has been practically lost as far as the general public is concerned.

In this age of synthetic and commercially prepared medicinal compounds and preparations the necessity of this knowledge has become more or less obsolete, even among professionals. This is, to my mind, not as it ought to be, and it seems to me that the park superintendent has an opportunity to utilize these little known facts in his work of increasing the general interest in parks.

The early gardens of the ancients were largely utilized for the growing of plants for medicinal purposes. The savages of all ages and of all parts of the world have known how to cure the ordinary ailments by the use of plants, native to their country, and we still find remains of medicinal herb gardens of our grandparents in the longest settled parts of our country.

To write of the medicinal value of all the plants cultivated in our parks would not be possible in a short article, and I have therefore restricted myself to the mention of a few of the more common and well known trees and shrubs of our parks and their medicinal value.

LARGE TREES.

Acer, Maple, all the species of: Bark, astringent, diuretic, leaves, used as an infusion.

Betula alba, White Birch, *B. papyrifera*, Paper Birch and *B. lenta*.

Black Birch, Bark and leaves used as a remedy for various chronic diseases of the skin and bladder, and for rheumatic and gouty complaints; the empyrennatic oil of birch obtained from the inner bark by distillation is used externally for the same purpose. Birch beer is obtained by fermenting the saccharine sap of *B. lenta*. Bark is used in the manufacture of ink.

Carya, Pecan and Hickory, all species. Bark: cathartic, leaves: astringent, shell: astringent.

Carpinus Americana, Hornbeam. Leaves: mild astringent.

Castanea vulgaris var. *Americana*, Chestnut. An infusion or fluid-extract of the dried leaves is employed in the treatment of whooping cough and other pectorial affections.

Catalpa bignonioides, Indian Bean. A decoction of the seeds and dried bark used in cases of asthma and bronchitis.

Celtis occidentalis, Hackberry. Bark: anodyne, refrigerant, buds: antisyphilitic.

Diospyros Virginiana, Persimmon. A decoction of the bitter and astringent unripe fruit and inner bark used in the treatment of diarrhoea, sore throat and hemorrhage. The ripe fruit sometimes fermented with hops, corn meal and wheat bran, as a beverage, under the name of "simmon beer."

Fagus ferruginea, American Beech. Bark: astringent.

Fraxinus, Ash. Species of: Bark: antiperiodic, tonic, diuretic, seed: used in obesity, leaves: used in gout.

Gleditsia triacanthos, Honey Locust. Sap: tonic.

Gymnocladus Canadensis, Kentucky Coffee Tree. Seed and pod: emetic, leaves: cathartic.

Juglans cinera, Butternut. The inner bark, especially that of the root, is employed as a mild cathartic, and furnishes a yellow dye. *Liquidambar styraciflua*, Sweet Gum. The balsamic exudation obtained from this tree is used in the form of sirup as a substitute for storax in the treatment of catarrhal affections, or externally as an ointment in dressing frost-bites and abscesses, also in the manufacture of chewing gum.

Liriodendron Tulipifera, Tulip Tree. A stimulating tonic is obtained by macerating the inner bark, especially of the root.

Morus rubra and *M. alba*, Mulberries. Fruit: acid, laxative, bark: vermifuge, cathartic.

Ostrya Virginiana, Hop Hornbeam. Bark: tonic, antiperiodic.

Oxydendron arboreum, Sorrel Tree. Leaves: tonic, diuretic, used in fever.

Populus balsamifera, Balsam Poplar. The buds, as well as those of other species of the genus, covered with a resinous exudation which is used medicinally as a substitute for turpentine and other balsms. *Populus tremuloides*, Quaking Asp. A bitter principle in the bark causes its use in the treatment of intermittent fevers and cases of debility.

Pyrus serotina, Wild Black Cherry. The bark contains a bitter tonic principle, and infused with cold water generates a small percentage of hydrocyanic acid gas; employed as a tonic and sedative in cases of pulmonary consumption, in the form of cold infusions, sirups and fluid extracts. Fruit used for a cherry brandy.

Prunus Pennsylvanica, Wild red Cherry. The small acid fruit used in the preparation of cough mixtures.

Quercus alba, White Oak, and species of genus. A decoction of the inner bark is employed in cases of hemorrhage and dysentery.

Robinia Pseudacacia, Black Locust. The bark of the root; tonic, or in large doses purgative and emetic.

Salix nigra, Black Willow, and species of genus. The tonic and astringent bark used as a popular

febrifuge, and containing salicylic acid, a powerful anti-pyretic used in the treatment of acute cases of gout, rheumatism and typhoid fever.

Sassafras officinale, Sassafras. The root, and especially its bark affords a powerful aromatic stimulant; the oil of sassafras distilled from the root, is used to impart a pleasant flavor to many articles of domestic use; the pith of the young branches infused with water furnishes a mucilage used as a demulcent in febrile and inflammatory affections.

Sorbus Americana, *S. sambucifolia* and *S. aucuparia*, Mountain Ash. Bark and unripe fruit are extremely astringent and occasionally used in the treatment of diarrhoea.

Tilia Americana, Basswood, American Linden. Aqua tilia, an infusion of the buds and leaves of the different species of *Tilia*, is used as a domestic remedy in cases of indigestion and nervousness. *Ulmus fulva*, Slippery Elm. The inner bark: mucilaginous, nutritious, and externally used in various medicinal preparations.

MEDIUM AND SMALL TREES.

Alnus serrulata, Black Alder. A decoction of the bark and leaves, as well as those of *A. incana*, is a popular remedy against impurity of the blood and in the treatment of diarrhoea and hæmaturia.

Amelanchier Canadensis, June Berry, Service Berry. Plant: anti-corbutic.

Cercis Canadensis, Red Bud. Flower: anti-corbutic.

Chionanthus Virginica, White Fringe. A decoction of the tonic and anti-periodic bark of the root employed in the treatment of intermittent fevers.

Cornus Florida, Flowering Dogwood. The bark, especially of the root, in common with that of other species of the genus, possesses bitter tonic properties and is used in the treatment of intermittent and malarial fevers.

Magnolia glauca, Sweet Bay. The dried bark of this species furnishes an aromatic tonic and stimulant used in intermittent fevers, a tincture made by macerating the fresh fruit or bark in brandy; is a popular remedy for rheumatism. *M. acuminata* and *M. umbellata* have the same medicinal properties.

Ptelea trifoliata, Hop Tree. Fluid extracts and tinctures of the bark and root is employed in cases of dyspepsia and debility.

Rhamnus Purshiana, Bearberry, and *R. Caroliniana*, Indian Cherry. Bark possesses powerful cathartic properties and is sold as fluid-extracts and tincture as cascara sagrada.

Viburnum prunifolium, Black Haw. and species of genus. Fruit and bark tonic and astringent, used in the form of fluid-extracts in the treatment of uterine disorders.

CONIFEROUS TREES.

Abies Canadensis, Balsam Fir. Canadian balm or balm of fir, an aromatic liquid oleo-resin, obtained from this and other species of *Abies* by puncturing the vesicles formed under the bark of stem and branches, is used chiefly in the treatment of chronic catarrhal affections.

Juniperus Virginica, Red Cedar. A decoction of the berries used as a substitute for savine cerate, and an infusion of the berries as a diuretic.

Larix, Larch, species of. The inner bark is used in the treatment of catarrhal affections of the pulmonary and urinary passages.

Picea nigra, Black Spruce. Essence of spruce, prepared by boiling the young branches is used in the manufacture of spruce beer, a popular beverage.

Pinus palustris, Yellow Pine. The turpentine, tar, pitch, rosin and spirits of turpentine manufactured in the United States are almost exclusively produced by this species.

Tsuga occidentalis, Arbor Vitæ, White Cedar. The distilled oil and a tincture of the leaves are used in the treatment of pulmonary and uterine complaints.

Tsuga Canadensis, Hemlock. Canada or hemlock pitch prepared from the resinous secretion of this species, is used in the preparation of stimulating plasters.

SHRUBS.

Aralia spinosa, Hercules Club. Leaves: soporific, bark: emetic, cathartic, Root: aromatic, berries; antirheumatic, the tincture used in toothache.

Berberis aquifolium, Hollyleaved Barberry, *B. vulgaris*, Common Barberry. Root and bark, astringent and laxative, buds: acid, refrigerant, used as an antiperiodic stimulant.

Calycanthus Floridus. Flower: aromatic, root: emetic, bark: stimulant.

Ceanothus Americana. New Jersey Tea. Bark and root used in the form of infusion or decoction for dysentery, sore throat of scarlet fever; locally in apthous affections of the mouth.

Celastrus scandens, Bitter Sweet. Bark of root used in affections of the liver.

Corylus Americana, Hazel. Fruit: diuretic, antidote.

Euonymus atropurpureus, Wahoo, Spindle Tree. Bark a mild purgative.

Hamamelis Virginica, Witch Hazel. Bark and leaves rich in tannin, used in the form of fluid-extracts and decoctions in external applications, and as a reputed remedy in hemorrhoidal affections.

Hydrangea arborescens, Hardy Hydrangea. Root: diuretic, leaves: cathartic, diuretic, tonic, used as decoction.

Ligustrum vulgare, Common Privet. Leaves: astringent, fruit: cathartic.

Lycium vulgare, Matrimony Vine. Root: diuretic.

Philadelphus coronarius, Mock Orange. Leaves: detergent, used as a poultice.

Rhododendron Maximum, Great Laurel. A de-

coction of the leaves is used in the treatment of rheumatism and sciatica.

Rhus copalina, Staghorn Sumach, *R. typhina*, and *R. glabra*. Bark and leaves rich in tannin, an infusion of the berries used as a gargle in cases of catarrhal sore throat.

Ribes, Gooseberry and currant, species of. Fruit: diuretic.

Rubus odoratus, Flowering Raspberry, and species of this genus, which includes the blackberries and dewberries. Fruit: Diuretic, laxative, plant and flower: diuretic, leaves: astringent, purgative, bark of root: astringent used in dysentery.

Spiraea opulifolia and *S. tomentosa*. Plant: astringent, diuretic, used in cholera infantum.

Vaccinium, Cranberry and Blueberry, species of. Bark and leaves: astringent, root: diuretic, Fruit: astringent, antiscorbutic, diuretic. *Xanthoxylum Americanum*, Prickly Ash, Toothache Tree. The bark is an active stimulant and is used in decoction to produce diaphoresis in cases of rheumatism and syphilis, and as a popular remedy for toothache.

Association and National Parks.

The following letter to President Wilson and his reply will be of interest to members:

November 19, 1913.

Hon. Woodrow Wilson,

President of the United States,

White House, Washington, D. C.

Sir: The undersigned, constituting the Executive Board of the American Association of Park

Superintendents, has voted to oppose the principle of granting in any national park or monument either temporary or permanent rights in favor of individuals, corporations or states that shall impair the beauty, freedom of use, or safety of such holdings. On this ground we oppose the proposed grant to San Francisco, Cal., of reservoir and power privileges in the Hetch-Hetchy Valley of the Yosemite National Park, that a bill pending in the United States Senate provides for, and also because it has been shown that such a grant is unnecessary.

Respectfully,

H. S. Richards, President; G. W. Burke, Vice-President; F. C. Green, Vice-President; Frank Brubeck, Vice-President; W. S. Manning, Vice-President; G. Hennenhofer, Vice-President; G. Champion, Vice-President; J. J. Levison, Secy.-Treasurer.

Department of the Interior,

Washington, D. C., December 15, 1913.

Mr. J. J. Levison, Secretary-Treasurer,

The American Association of Park Superintendents, Brooklyn, N. Y.

Sir: I am in receipt, by reference from the President, of your letter protesting against the use of the Hetch-Hetchy Valley in connection with the development of a water supply, etc., for the city of San Francisco, Cal.

This matter has been placed on file and will be given consideration.

Respectfully,

ADOLPH C. MILLER,

Assistant to the Secretary.

SPRAYING CHICAGO'S STREET TREES

By J. H. Prost, Superintendent of Special Park Commission and City Forester.

The following insects have been found doing considerable damage to the trees and shrubs in and about Chicago. I will endeavor to enumerate them in the order of their importance, or, perhaps better, destructive ability:

The Tussock Moth (*Orgyia Leucostigma*), a chewing insect, affecting the horse-chestnuts, lindens, willows, poplars, soft maples and birch. It shows its preference in the order named.

The boring insects have been multiplying with great rapidity in and about Chicago, or perhaps more truly speaking, we begin to recognize them more each year. There are many different varieties and they affect nearly every variety of tree. Perhaps the Poplar or Willow Borer (*Cryptorhynchus Lapathie*) is the most common and does most damage. The willows, poplars, soft maples, honey locusts, box elders and cottonwoods are affected most, while the lindens, elms, ash, oaks and hockberry are affected in a lesser degree, and the alanthus, catalpa, sycamore and ginkgo are not attacked seriously, if at all.

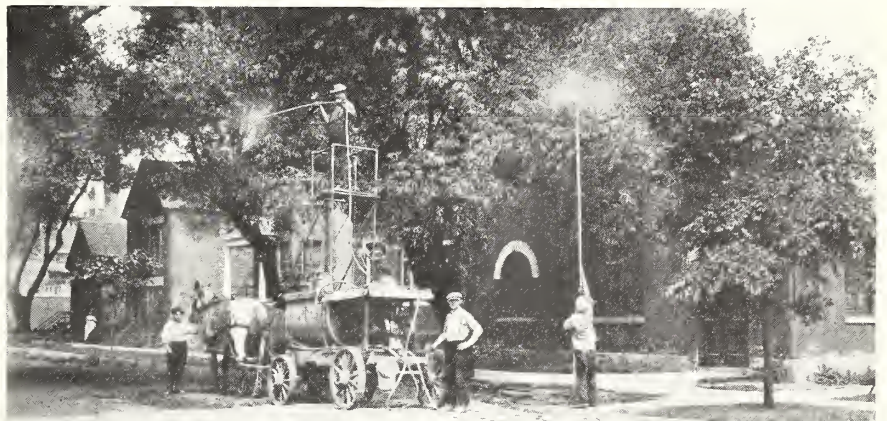
The Scale insects are sucking pests and present in multitudinous numbers and many varieties. Most common is the Cottony Maple Scale (*Pulvinaria Innumerabilis*), which attacks the soft maples, box elders, lindens, willows and other trees in a lesser degree.

The second most destructive Scale insect is the Elm Scale (*Chionaspis Americana*) and (*Aspidiotus Ancylos*); both are serious. I venture to say that it would be a difficult task to find even one American elm tree which has been growing in one of our parks or on our streets for five or

more years that is entirely free from the Elm Scale, and after one appreciates how rapidly they multiply and migrate, it is readily understood how they can retard

fecting the elms, lindens and sycamores, but is not serious.

Another class of insects that are not serious, yet quite annoying and unsightly,



SPRAYING STREET TREES IN CHICAGO.

the health and growth of our best shade tree, the American elm.

The Walnut Scale, the Scurvy Scale, the Oyster Shell Bark Scale and San Jose Scale are other varieties of these destructive pests.

Then we have several varieties of the Aphidæ, as the black, red and woolly Aphis, which are sucking insects, as well as mealy-bugs. All do considerable damage to our trees and shrubs, but I think there is hardly any excuse for the continued existence of this class of pests, because they are so easily destroyed by the use of a weak solution of kerosene emulsion.

The tent caterpillar has been found af-

are the various gall-making insects. Those common are the so-called Cocks Comb Gall (*Colophila ulmicola Fitch*). The (*Phytotus Quadripes*), a four-legged mite, can be destroyed by applying a weak solution of kerosene emulsion in the spring, and are also destroyed by gathering the galls.

Another class of insects are the grubs working under ground and affecting the minute root hairs, as the June bug, destroyed by turning the sod and picking out the grubs or larvæ. In combating these pests they may be placed in three groups, the chewing, sucking and boring insects.

The chewing insects, as the Tussock Moth, Tent Caterpillar, etc., can best be exterminated by spraying the trees just

before the larvæ hatch from the eggs with an internal poison. Any arsenides will do the business, but arsenate of lead is the best. The solution should contain about 25 to 30 pounds to 100 gallons of water. A good rule to follow in determining the amount of arsenate to use is to use just enough.

In addition to spraying with arsenical poison, it is well to encourage citizens and school children to collect and destroy the cocoons, and the caterpillars which form in nests or tents can be destroyed by clipping off the branch upon which they gather and burn the insects, or they can be burned on the tree by using a torch and thus cremating the pest. The following firms make good arsenate of lead: Sherwin Williams Paint Co., Dow Chemical Co.

The suckling insects are combated by ap-

plying contact poisons or solutions. Of all the chemicals and manufactured articles advertised, I prefer to use just two, the lime and sulphur solution, to be applied while the trees are dormant, and the kerosene emulsion, to be used while the plants are in leaf. The kerosene to be an 8 or 12 per cent solution made by using Tak-a-Nap soap. The lime and sulphur solution to be an 18 or 20 per cent solution. Lime and sulphur is sold by the same firms mentioned above.

Where the borers are present in large numbers on a short lived tree, I would remove the tree in the fall or early spring. If it is a hard wood, long lived tree, and one to which sentiment is attached, or a young tree of any variety, have the borers grubbed out or inject bisulphide of carbon into the burrows of the borer, then plug it up with putty. This compound

volatilizes and the fumes are deathly poisonous.

We use the Hardie Triplex Power sprayer, an efficient and powerful outfit, which can be handled by any park laborer with ordinary intelligence. The engine has an upright action, sets above the rear axle of the truck, thus preventing all jarring and jerking of the truck. We have two of these power sprayers, which we have used three years, our repair expense in that time being exceedingly small, and three different \$2 per day employees have operated the outfit after one day's help and instruction. We run only two lines of hose, although four can be run. One line works in the tree and the other from the tower, as shown in our report of 1912. In the summer we sprayed to kill the Tussock Moth and in winter to kill the Scale insects.

PROTECTION OF STREET TREES

From Report of Newark, N. J., Shade Tree Commission.

To be responsible for 60,000 street trees distributed over an area of 17.00 square miles (the area of Newark is 23.40 square miles, but about 6.40 square miles is undeveloped meadow) is no light responsibility. It's a big enough job to "care for" such a stand of forestry. But consider also the need these trees have of protection. That need is manifold. To say nothing of destructive insects, there are other agencies yet more destructive and more difficult to control. As injuriously affecting both old and young trees, there are the thoughtless small boy, the runaway horse, the ruthless driver, the occasional ruffian; there are the layers of gas, sewer and water pipes and electric wire conduits; there are pavers and sidewalk layers who surreptitiously cut the roots, and builders who bruise and maim the trunk; there are overhead wires and underground gas leaks, both illuminating and sewer gas; and there are—others. No child's play to protect 60,000 street trees from all these. Yet the job was undertaken, and from year to year it comes nearer and nearer to full accomplishment. Conditions are improving and will further improve if only we "keep everlastingly at it."

Gas, ladies and gentlemen, illuminating gas, is all right in its place, but it's all wrong out of its place—and sure that's true of all of us, but never mind; gas is now the topic. Well, then, gas is very much out of place when it comes a-leaking from defective sub-surface pipes and proceeds to impregnate the soil, poison the roots and thus kill the trees. And that is what sometimes happens—happens too many times indeed. Here in Newark, for instance, we have "rounded up," in the last two years, some 300 trees that had been poisoned to death in this manner. We have told in a former report how we proceeded

to bring the gas company to task in this matter, and how the company agreed to pay the cost in each case of "taking down the dead tree and setting out a live tree

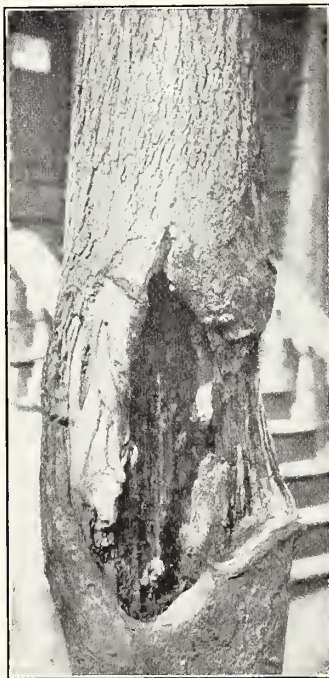
sizable, thumping damages to rouse them to sufficient zeal in preventing leaks.

The city tree on the street has many needs that its brother on the lawn knows not of, as likewise its cousin in the country. Among these is the need of protection against the bitings of the festive horse. To the average horse the bark of a tree is a toothsome morsel and this good old friend of man can in a short while put a bite in the bark that will work sad havoc to the tree. The picture will show. That ugly cavity is what comes in time of horse bites. The wood is made bare of its protecting bark. The weather gets in its work, the rain, the dew, the dirt, the tree bacteria and so on. Decay sets in. The wood rots, and the rot spreads wider and wider and sinks deeper and deeper. In time the ghastly spectacle of the picture is realized. Pitiful, isn't it? Meanwhile and incidentally the cambium layer of cells in that part of the tree thus wounded has been destroyed and, of course, the nutritive processes of the tree have to that extent become deranged.

For a few dimes we could have safeguarded that tree absolutely from the horse's teeth. A cheap wire guard would have done it. This would cost at retail about 35 cents. For the older trees a wire screen on the side of the tree toward the roadway would suffice. This should be of half-inch mesh galvanized wire, No. 16.

The Washington methods of protecting street trees against horse biting is simple and inexpensive, also just. There a driver who allows his horse to stand where that horse can chew a tree is arrested and, upon conviction, fined \$10. This procedure has become just pure matter-of-course in Washington.

Progress has been made in the observ-



RESULT OF HORSE BITES.

instead." The city has been reimbursed to the extent of several thousand dollars for the loss of these gas-destroyed trees, the money thus collected going to the removing of the old trees and the setting out of new trees to take their places.

We again point out that the mere "cost of taking down the dead tree and setting out a new one in its stead" does not begin to be adequate compensation for the injury done. The company needs to be mulcted in good,

This Type of Guard should be maintained around all trees during building operations



Rigid Wooden Guard to Protect Tree and Wire Guard at least 6 ft. high

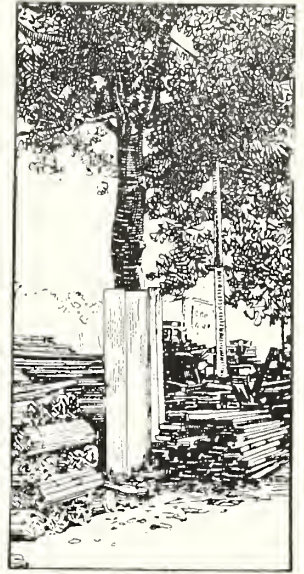
PAGE FROM NEWARK TREE PROTECTION CIRCULAR.

ance of the shade tree ordinance. There was an increased measure of police co-operation. The number of people has grown who have familiarized themselves with the ordinance and co-operate in its support. Detriment to trees from building operations has decreased and such operations are more under our control.

Here, as often elsewhere, lack of knowledge was to be overcome. The police officer would not know that such and such an act was harmful or even illegal. The mechanic (builders, sidewalk men, pavers, plumbers) piled building bricks against the trunks, cut the roots, and in other respects maltreated trees, "not knowing." Accordingly we issued a circular to make two provisions so clear that the simplest could understand. We sent a copy to each policeman. A number have co-operated ever since upon their own initiative; others aid when this department calls on them. We believe the circular made co-operation more instant and intelligent. Then our representations to the builders by interviews and correspondence have borne fruit. These methods, while they take time at the start, give the man who does not read the ordinance an object lesson. He learns that the city says, "Thou shalt not," when aggression on a tree is planned.

We, therefore, readily assure ourselves that we can count on your cordial co-operation in this matter of protecting the trees of Newark.

Newark Shade Tree Commission



Temporary Wooden Guard—6 ft. high

PAGE FROM NEWARK TREE PROTECTION CIRCULAR.

SHADE TREE PESTS OF THE NORTHWEST

From the Minnesota Agricultural Experiment Station.

During the past two years a keen interest has been taken by the general public in the care and preservation of trees. We are hoping for a continued growth in interest, for we still have many enemies to conquer.

The three different types of insects have been busy getting in their destructive work that has in many instances proven disastrous.

Borers perhaps have given us most trouble, working principally in the oaks and birches. To prevent further infection 5,000 dead or dying oaks were cut and burned on park property during the year of 1912. Half that number have succumbed to the ravages of these pests this year.

The white, flat-headed grubs of the two-lined chestnut borers (*Agilus bilineatus*) have perhaps killed more oaks than any other species, so far as is known. The eggs are laid in the crevices of the bark, the grub hatches and burrows into the cambium or growing layer. By crossing and interlacing the tree is girdled and dies. Borers usually work from the base of the tree to the smaller limbs. The bronze birch borer (*Agilus anxius*), however, generally attacks the upper branches first and works toward the lower trunk. Fifty cut leaf and pendulous birches were found infested during the past year and were destroyed.

Perhaps the most serious pest of the American elm in Minnesota is the white footless elm borer (*Saperda tridentata*). Diseased areas of the bark on the trunk of a tree are generally sure signs that borers are present.

Other borers found in greater or less abundance are the common flat-headed borer (*Chrysobothris femorata*), the rustic borer, and grubs of the Thunderbolt beetle (*Arhopalus fulminans*).

The rustic borer (*Xylotrechus colonus*) has always been found with the two-lined chestnut borer in oaks, but working in the pithy layer. Its ravages are not confined to the oak, however; it enjoys the hard maples, box elders, lindens and elms equally well. The only effective method so far found of preventing further infection of trees and wiping out the borer is to destroy the already infested trees.

Among the biting insects the larva of snow white linden moth (*Ennomos subsignarius*) produced disastrous despoilation. American elms, lindens and ashes were equally attacked in large tracts, not on park property, but in our vicinity. They were so numerous in some infected areas that the dropping of the excrement sounded like rain on the leaves of the undergrowth.

The sucking insects of this section are elm leaf louse (*Gossyparia ulmi*), plant lice (*Myzus ribis*), and the cottony maple

(*Pulvinaria innumerabilis*), scurfy (*Chionaspis furfurus*), and the oyster shell bark scales (*Mytilaspis pomorum*). All of these were found on the American elm, box elder and soft maple. They begin to attract attention late in May or the early part of June.

Fortunately there has been little need for the spraying of trees on park property, though some was done in the street trees to control both sucking and biting insects. Two applications of the universal kerosene emulsion (contact spray, effective with all sucking insects) was necessary to obtain results with the elm leaf louse and scale insects. Sherwin Williams' arsenate of lead (a poison effective with all biting insects), used in the proportion of three pounds to fifty gallons of water, controlled the larvæ of the linden moths on street trees; also sticky bands were used to check this pest where it occurred in extensive areas.

Sherwin Williams' arsenate of lead may be had from any dealer carrying Sherwin Williams' paints.

The kerosene emulsion is made by dissolving one-half pound soap in one gallon water; while still hot remove from fire and add two gallons of kerosene. The liquid is then pumped back into itself until a creamy mass results. Dilute with 10 to 15 gallons of water for lice and scale.

INSECT PESTS AND HOW TO FIGHT THEM

J. J. Levison, secretary of the American Association of Park Superintendents and forester in the Department of Parks, Brooklyn, N. Y., is the author of one of the most interesting and useful handbooks on trees that has yet been published. "Studies of Trees" is a manual and practical guide for all interested in the care of trees and is published in form to be a suitable field book. It is arranged in sixteen small pamphlets, each devoted to a particular study and freely illustrated with halftones from photographs taken especially for this study or selected from the files of the United States Forest Service, in which the writer has also been engaged.

"Studies of Trees" furnishes authoritative yet popular information on subjects relating to trees. It deals with the identification of trees; their nature, habits and growth; insects and diseases which attack them; their grouping and planting; the

pruning and care of trees, and forestry in its many aspects.

The treatment is concise, systematic and free from an undue use of technical botanical terms. The author's aim throughout is to give only the salient points. This, together with the form in which the text is issued, renders these studies especially valuable as a guide for practical field work and for observations and note keeping in the field.

The size is planned to fit the usual 8x10½-inch commercial note book cover. The manual may, therefore, be conveniently carried on field excursions together with a supply of paper for notes.

The pamphlets will be sold separately at the price quoted, or may be obtained in lots of fifty, of the same or different pamphlets, at a discount of 20 per cent from the list price.

"Studies of Trees," by J. J. Levison, M.F. Lecturer on Ornamental and Shade Trees, Yale University Forest School; Forester to the Department of Parks, Brooklyn, N. Y., published by John Wiley & Sons, Inc., 432 Fourth Avenue, New York.

The following Pamphlets are now ready for distribution:

	Titles	Price
Pamphlet T 1-1.	The Pines.....	5c
Pamphlet T 1-2.	The Spruce and Hemlock.....	5c
Pamphlet T 1-3.	The Arbor Vitæ and Cedar.....	5c
Pamphlet T 1-4.	The Larch and Cypress.....	5c
Pamphlet T 1-5.	The Horsechestnut, Ash, and Maple.....	5c
Pamphlet T 1-6.	Trees Told by their Form: Elm, Poplar, Ginkgo, and Willow.....	5c
Pamphlet T 1-7.	Trees Told by their Bark or Trunk: Sycamore, Birch, Beech, Blue Beech, and Hackberry.....	5c
Pamphlet T 2-1.	What Trees to Plant and How.....	5c
Pamphlet T 3-1.	Insects Injurious to Trees and How to Combat Them.....	10c
	In Press, ready Fall, 1913.	
Pamphlet T 4-1.	Pruning Trees.	
Pamphlet T 5-1.	Tree Diseases.	
Pamphlet T 5-2.	Tree Repair.	
Pamphlet T 6-1.	The Nature and Requirements of Trees.	
Pamphlet T 7-1.	What Forestry Is and What It Does.	

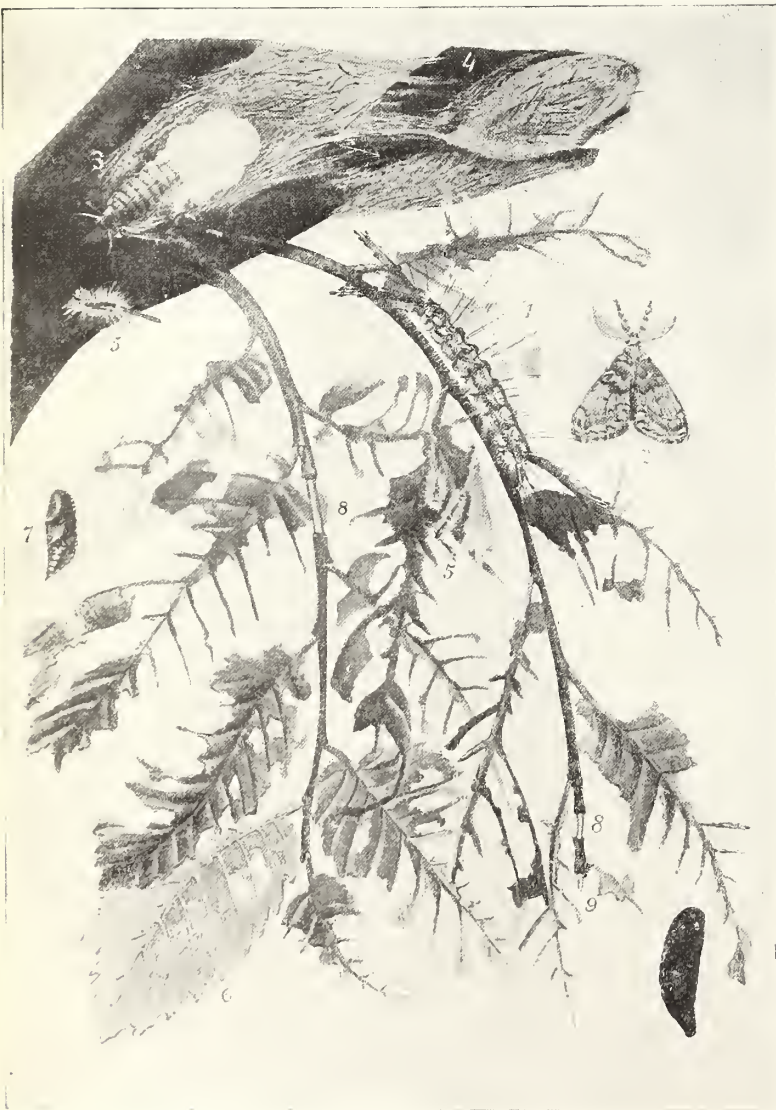


FIG. 5. THE TUSSOCK MOTH (AFTER DR. E. P. FELT.)
1, Caterpillar; 2, Male Moth; 3, Female Moth Laying Eggs; 4, Cocoon; 5, Cast Skins of Caterpillar; 6, Work of Goring Caterpillar; 7, Male Pupa; 8 and 9 Girdled Branches.

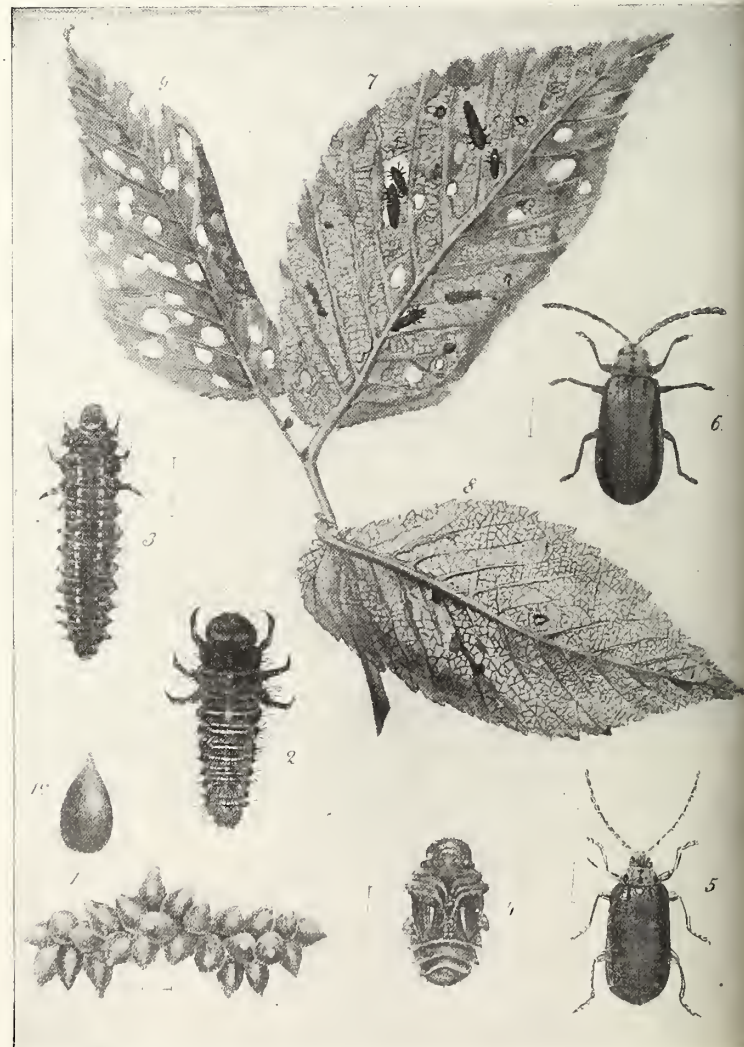


FIG. 4. THE ELM LEAF BEETLE (AFTER DR. E. P. FELT.)
Fig. 1, Egg cluster, enlarged; a single egg, greatly enlarged; 2, Young larva, enlarged; 3, full grown larva, much enlarged; 4, pupa, enlarged; 5, overwintered beetle, enlarged; 6, Fresh, brightly colored beetle, enlarged; 7, under surface of leaf, showing larva, feeding; 8, leaf eaten by larva; 9, Leaf showing holes eaten by beetles.

Pamphlet L 7-2. Care of the Woodlot.

Pamphlet T 8-1. Our Common Woods: How to Tell Them and their Uses.

Other Pamphlets are in preparation and will be announced later.

The following quotations and plates from Pamphlet T 3-1, on "Insects Injurious to Trees and How to Combat Them," will be of particular interest to our readers:

In a general way, trees are attacked by three classes of insects, and the remedy to be employed in each case depends upon the class to which the insect belongs. The three classes of insects are:

1. Those that chew and swallow some portion of the leaf; as, for example, the elm leaf beetle, and the tussock, gypsy, and brown-tail moths.

2. Those that suck the plant juices from the leaf or bark; such as the San José scale, oyster-shell, and scurfy scales, the cottony maple scale and the woolly maple-leaf scale on the sugar maples and the various aphides on the beech, Norway maple, etc.

3. Those that bore inside of the wood or inner bark. The principal members of this class are the leopard moth, the hickory-bark borer, the sugar-maple borer, the elm borer, and the bronze-birch borer.

The chewing insects are destroyed by spraying the leaves with arsenate of lead or Paris green. The insects feed upon the poisoned foliage and thus are themselves poisoned.

The sucking insects are killed by a contact poison: that is, by spraying or washing the affected

parts of the tree with a solution which acts externally on the bodies of the insects, smothering or stifling them. The standard solutions for this purpose are kerosene emulsion, soap and water, tobacco extract, or lime sulphur.

The boring insects are eliminated by cutting out the insect with a knife, by injecting carbon bisulphide into the burrow and clogging the orifice immediately after injection with putty or soap, or in some cases where the tree is hopelessly infested, by cutting down and burning the entire tree.

For information regarding the one of these three classes to which any particular insect belong, and for specific instructions on the application of a remedy, the reader is advised to write to his State Entomologist or to the U. S. Bureau of Entomology at Washington, D. C. The letter should state the name of the tree effected, together with the character of the injury, and should be accompanied by a specimen of the insect, or by a piece of the affected leaf or bark, preferably by both. The advice received will be authentic and will be given without charge.

When to spray: In the case of chewing insects, the latter part of May is the time to spray. The caterpillars hatch from their eggs, and the elm leaf beetle leaves its winter quarters at that time. In the case of sucking insects, the instructions will have to be more specific, depending upon the particular insect in question. Some sucking insects can best be handled in early June when

their young emerge, others can be effectively treated in the fall or winter when the trees are dormant.

How to spray: Thoroughness is the essential principle in all spraying. In the case of leaf-eating insects, this means covering every leaf with the poison and applying it to the under side of the leaves, where the insects generally feed. In the case of sucking insects, thoroughness means an effort to touch every insect with the spray. It should be borne in mind that the insect can be killed only when hit with the chemical. The solution should be well stirred, and should be applied by means of a nozzle that will coat every leaf with a fine, mist-like spray. Mere drenching or too prolonged an application will cause the solution to run off. Special precautions should be taken with contact poisons to see that the formula is correct. Too strong a solution will burn the foliage and tender bark.

Spraying apparatus: There are various forms of spraying apparatus in the market, including small knapsack pumps, barrel hand-pumps, and gasoline and gas-power sprayers. Hose and nozzles are essential accessories. One-half inch, three-ply hose of the best quality is necessary to stand the heavy pressure and wear. Two 50-foot lengths is the usual quantity required for use with a barrel hand-pump. Each line of hose should be supplied with a bamboo pole 10 feet long, having a brass tube passed through it to carry the nozzle. The Vermorel nozzle is the best type to use. The cost



FIG. 6. THE GIPSY MOTH (FROM CIRC. 21, N. Y. STATE DEPT. OF AGRICULTURE.) 1, male laying Eggs; 2, Eggs, enlarged; 3, Caterpillar; 4, Pupa; 5, Female Moth; 6, Male Moth.

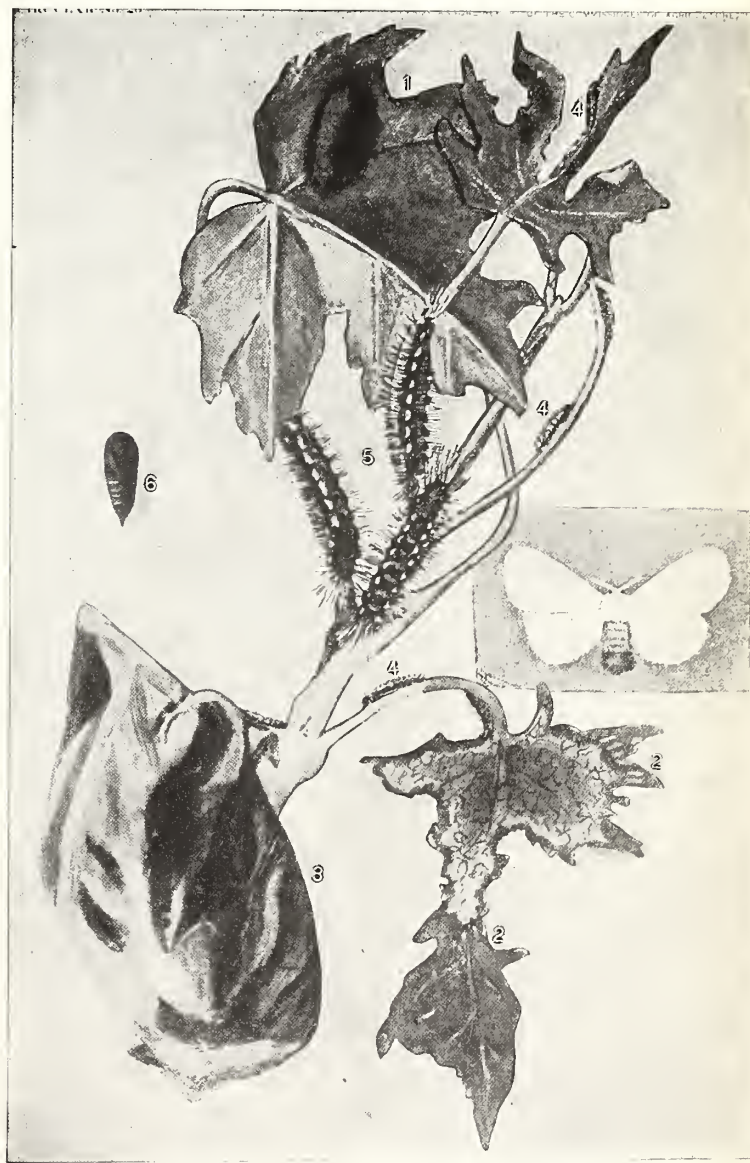


FIG. 7. THE BROWN TAIL MOTH (FROM CIRC. 20, N. Y. STATE DEPT. OF AGRICULTURE.) 1, Egg Cluster; 2, Young Caterpillar; 3, Winter Nest; 4, Caterpillar in Spring; 5, Mature caterpillars; 6, Pupa; 7, Female Moth.

of a barrel outfit, including two lines of hose and nozzles, should be from \$25 to \$35. Power sprayers cost from \$150 to \$300 or more.

Spraying material: Arsenate of lead should be used in the proportion of 4 pounds of the chemical to 50 gallons of water. A brand of arsenate of lead containing at least 14 per cent of arsenic oxide should be insisted upon. This spray may be used successfully against caterpillars and other leaf-eating insects in the spring or summer.

Whale-oil soap should be used at the rate of 2 pounds of the soap to one gallon of hot water, if applied to the tree in winter. As a spray in summer, use one pound of the soap to five gallons of water. This treatment is useful for sucking insects.

Kerosene emulsion consists of one-half pound of

this insect: First, by spraying the foliage with arsenate of lead in the latter part of May while the beetles are feeding, and repeating the spraying in June when the larvæ emerge. The spraying method is the one most to be relied on in fighting this insect. A second remedy consists in destroying the pupæ when they gather in large quantities at the base of the tree. This may be accomplished by gathering them bodily and destroying them, or by pouring hot water or a solution of kerosene over them. In large trees it may be necessary to climb to the crotches of the main limbs to get some of them. The third remedy lies in gathering and destroying the adult beetles when found in their winter quarters. The application of bands of burlap or "tangle-foot," or of other substances often seen on the trunks of elm trees is injurious and useless, since these bands only prevent the larvæ from crawling down from the leaves to the base and serve to prevent nothing from crawling up. Scraping the trunks of elm trees is also a waste of effort.

THE TUSSOCK MOTH.

Life history: This insect appears in the form of a red-headed, yellow-colored caterpillar during the latter part of May, and in June and July. The caterpillars surround themselves with silken cocoons and change into pupæ. The mature moths emerge from the cocoons after a period of about two weeks, and the females, which are wingless, soon deposit their eggs on the bark of trees, on twigs, fences, and other neighboring objects. These eggs form white clusters of 350 individual eggs each, and are very conspicuous all winter, see Fig. 3.

Remedies: There are two ways of combating this insect: (1) By spraying for the caterpillars during the latter part of May and early June. (2) By removing and destroying the egg masses in the fall or winter.

THE GIPSY MOTH.

Life history: This insect, imported from Europe to this country in 1868, has ever since proved a serious enemy of all kinds of shade, forest, and fruit trees in the New England States. It even feeds on evergreens, killing the trees by a single defoliation.

The insect appears in the caterpillar stage from April to July. It feeds at night and rests by day. The mature caterpillar, which is dark in color, may be recognized by rows of blue and red spots along its back. After July, egg masses are deposited by the female moths on the bark of trees, and on leaves, fences, and other neighboring objects. Here they remain over the winter until they hatch in the spring. The flat egg masses are round or oval in shape, and are yellowish-brown in color.

Remedies: Spray for the caterpillars in June with arsenate of lead and apply creosote to the egg masses whenever found.

THE BROWN-TAIL MOTH.

Life history: This insect was introduced here from Europe in 1890 and has since done serious damage to shade, forest, and fruit trees, and to shrubs in the New England States.

It appears in the caterpillar stage in the early spring and continues to feed on the leaves and buds until the last of June. Then the caterpillars pupate, the moths come out, and in July and August the egg clusters appear. These hatch into caterpillars which form nests for themselves by drawing the leaves together. Here they remain protected until the spring.

EXAMINATION FOR PARK FOREMAN.

The Civil Service Board of the West Park Commission of Chicago will hold an examination for foreman of Douglas Park January 30, 1914. This position pays from \$125 to \$150 per month and involves full charge of Douglas Park, including all gardening and landscape work, as well as the boating, skating and other activities. Since this park has an area of more than 180 acres, the position is one of no little importance. The Civil Service Board is desirous of calling this examination to the attention of all competent persons who may be interested. The special subject of the examination will be given: Weight of

Remedies: Collect the winter nests from October to April and burn them. Also spray the trees for caterpillars in early May and in August with arsenate of lead.

THE FALL WEBWORM.

The caterpillars of this insect congregate in colonies and surround themselves with a web which often reaches a size of a foot or more in diameter. These webs are common on trees in July and August. Cutting off the webs or burning them on the twigs is the most practical remedy.

THE LEOPARD MOTH.

Life history: This insect does its serious damage in the grub form. The grubs which are whitish in color with brown heads, and which vary in size from $\frac{3}{4}$ of an inch to 3 inches in length (Fig. 8), may be found boring in the wood of the branches and trunk of the tree all winter. The leopard moth requires two years to complete its round of life. The mature moths are marked with dark spots resembling a leopard's skin, hence the name. It is one of the commonest and most destructive insects in the East and is responsible for the recent death of thousands of the famous elm trees in New Haven and Boston.

Remedies: Trees likely to be infested with this insect should be examined three or four times a year for wilted twigs, dead branches, and strings of expelled frass; all of which may indicate the presence of this borer. Badly infested branches should be cut off and burned. Trees so badly infested that treatment becomes too complicated should be cut down and destroyed. Where the insects are few and can be readily reached, an injection of carbon bisulphide into the burrow, the orifice of which is then immediately closed with soap or putty, will often destroy the insects within.

THE HICKORY BARK BORER.

Life history: This insect is a small brown or black beetle in its mature form and a small legless white grub in its winter stage. The beetles appear from June to August. In July they deposit their eggs in the outer sapwood, immediately under the bark of the trunk and larger branches. The eggs soon hatch and the grubs feed on the living tissue of the tree, forming numerous galleries. The grubs pass the winter in a nearly full-grown condition, transform to pupæ in May, and emerge as beetles in June.

Remedies: The presence of the insect can be detected by the small holes in the bark of the trees and the fine sawdust which is ejected from these holes, when the insects are active. These holes, however, will not be noticeable until the insect has completed its transformation. In summer, the infested trees show wilted leaves and many dead twigs. Holes in the base of the petioles of these leaves are also signs of the working of the insect. Since the insect works underneath the bark, it is inaccessible for treatment and all infested trees should be cut down and burned, or the bark removed and the insects destroyed. This should be done before the beetles emerge from the tree in June.

PLANT LICE OR APHIDES.

These often appear on the underside of the leaves of the beech, Norway maple, tulip, etc. They excrete a sweet, sticky liquid called "honey-dew," and cause the leaves to curl or drop. Spraying with whale oil soap solution formed by adding one pound of the soap to five gallons of water is the remedy.



Fig. 8. Larva of the Leopard Moth.

hard soap, one gallon of boiling water, and two gallons of kerosene. It may be obtained in prepared form and is then to be used at the rate of one part of the solution to nine parts of water when applied in winter or to the bark only in summer. Use two gallons of the solution to a 40-gallon barrel of water when applying it to the leaves in the summer. Kerosene emulsion is useful as a treatment for scale insects.

Tobacco water should be prepared by steeping one-half pound of tobacco stems or leaves in a gallon of boiling water and later diluting the product with 5 to 10 gallons of water. It is particularly useful for plant lice in the summer.

THE ELM LEAF BEETLE.

Life history: The elm beetle is annually causing the defoliation of thousands of elm trees throughout the United States. Several successive defoliations are liable to kill a tree. The insects pass the winter in the beetle form, hiding themselves in attics and wherever else they can secure shelter. In the middle of May when the buds of the elm trees unfold, the beetles emerge from their winter quarters, mate, and commence eating the leaves, thus producing little holes through them. While this feeding is going on, the females deposit little, bright yellow eggs on the under side of the leaves, which soon hatch into small larvæ or grubs. The grubs then eat away the soft portion of the leaf, causing it to look like lacework. The grubs become full grown in twenty days, crawl down to the base of the tree, and there transform into naked, orange-colored pupæ. This occurs in the early part of August. After remaining in the pupa stage about a week, they change into beetles again, which either begin feeding or go to their winter quarters.

Remedies: There are three ways of combating

4; experience, weight of 4; educational, weight of 2. Special subject will include oral and written questions on the propagation, planting, pruning and care of trees and shrubs; on the care of annual and perennial plants; on the making and treatment of lawns; and on fertilizing and treatment of soils, and other questions on the qualifications to perform the duties specified. Applications must be filed with Fred G. Huechling, Superintendent of Employment, in the office of the Board in Union Park before 5 p. m. of January 29, 1914.

BIG TREE MOVING IN INDIANAPOLIS PARKS

being merely a tripod with a three-ton block and chain.

Owing to the heavy sleet during March a force of trimmers was employed during the summer in removing broken and dead limbs from trees in all parks in the system. The trees damaged by this storm were of the soft wood variety. T. H. Tall, horticulturist of the department, suggests that in the near future a force of tree surgeons be employed to remove all weak and dead wood and fill cavities in all forest trees. This will prolong the life of the tree, as all decayed wood is removed, the cavity painted and filled with cement and in time cambium bark will roll over the cement and form an air-tight joint.

In early fall, spraying operations were resumed against all scale insects, and, with additional equipment purchased during the summer, more trees have been sprayed and the power sprayer was kept at Riverside and Fall Creek Parkway. Approximately 20,000 gallons of solution were used.

By a recent city ordinance the department now exercises full control and jurisdiction over all trees and shrubbery on city lawns. The ordinance prescribing the issuing of permits for the planting, trimming, spraying or removal of trees or shrubbery on the public lawns, specifies that ground lying between the curbing and the property line of any street, alley or public thoroughfare, and requires that all persons engaged in the business of planting, trimming, spraying or removal of trees on such street lawns first secure a city license after having submitted to an examination by the horticultural department as to their knowledge and fitness for the care and treatment of trees.

The Horticultural Department has been conducted very intelligently during the year and much planting has been accomplished which will in a few years add to the general beauty of the parks.



TRANSPLANTING TREES IN WINTER; INDIANAPOLIS PARK SYSTEM.

The illustrations on this page show some interesting work in the transplanting of large trees in the Indianapolis parks. This work is done under the direction of the park horticultural department. The trees are usually removed in the winter, when the ground is frozen, excavation being made to a depth of about five or six feet. These holes are provided with good loamy soil and the trees which are to be moved are cut around the roots during the previous summer, and when they are removed balls of earth from five to six feet and about three feet in depth are transferred. The cart for moving them is a home-made affair, which is very simple,

CEMETERY NOTES

Superintendent Alex Hanton, of the Cemetery Department of Barre, Vt., is making an active campaign to get the New England Cemetery Association to meet in Barre. This town has made much progress in cemetery development in recent years, and its interesting cemeteries were described and illustrated in our December issue. In addition to the direct interest in cemetery matters, superintendents will find it profitable to inspect the great granite

quarries and granite cutting plants at Barre. This city is the greatest monumental granite producing center in the world and cemetery men could learn much here of the processes by which monumental granite is quarried and finished. Mr. Hanton promises that the cemetery people will be the guests of Barre citizens while they are there and that they will be under no expenses of any kind. Some extensive improvements are being made in Barre cem-

eteries. At the entrance to Elmwood they have put in over 200 cubic yards of dirt and about 300 yards more will be placed in the spring. A monument with bottom base 8-7x5-7 has been set on the James Perry lot in Elmwood. In Hope Cemetery Superintendent Hanton has set out about 400 trees. All are native to Vermont and include maples, ash, elm and beech. Over 600 more are yet to be set out. January 1, Barre joins the many cemeteries which charge double time for all Sunday burials. The practice was almost becoming a nuisance in Barre.

F. Z. Brown, secretary of Laurel Hill Cemetery Co., 45 South Seventeenth street, Philadelphia, announces that at a meeting of the managers, November 25, it was voted that as a protection to all lot holders, to avoid disturbances, jealousies or contention among workmen and for the general welfare and better preservation of the cemetery and the consistent and uniform improvement of the same, the management reserves the right to do all gardening work for all lots after January 1, 1915, and also that on and after January 1, 1915, no person will be permitted to enter Laurel Hill Cemetery for hire, for the purpose of cutting grass, planting flowers, sodding and grading lots at the instance and direction of any lot owner; any such person so offending will be treated as a trespasser.

Hare & Hare, of Kansas City, Mo., are platting the ground at Racine, Wis., for Graceland Cemetery, fifty-one acres. They have finished and delivered the road, drainage, water, topography and lot plans. They also have the Geneseo, Illinois Cemetery, "Oakwood," about at the same stage of progress. The planting plans of each will follow some time later.

McKim, Mead & White, of New York, have designed a beautiful marble memorial to the late Augustus Saint-Gaudens, to be erected at Cornish, N. H., by Mrs. Augusta Saint-Gaudens, widow of the famous sculptor. It will be a pergola design with four columns surrounding a carved altar piece in the center. The monument proper will cover a space 8-0x5-0, although it will be supported by a series of steps, the largest of which will measure 15-2x12-6. The columns are to be about 11-0 high and 1-2 in diameter. The total height, including the entablature, is approximately 15-0. The marble is to come from the Westland quarry of the Vermont Marble Company.

At the recent annual meeting of Oakland Cemetery, St. Paul, Minn., the reports of Secretary and Superintendent Frank D. Willis showed in considerable detail the financial condition of the association and the operations of the cemetery for the year. All of the income of the cemetery is applied to its maintenance and development and its physical condition and appearance have been and are being improved from

year to year as rapidly as the funds permit. Following are some statistics of the year's work:

RECEIPTS	
Sales of lots.....	\$19,512.00
Sales of single graves.....	1,674.00
Interment fees.....	2,899.00
Tomb fees.....	803.00
Miscellaneous labor and foundations.....	4,433.86
Greenhouse sales.....	8,925.80
Perpetual care on old lots....	381.80
Ordinary.....	\$38,632.46
Special deposits on lots and perpetual care.....	\$ 442.00
On lot contract accounts.....	3,273.00
Interest.....	168.90
Transfer fees.....	14.00
Securities matured and paid..	500.00
Special care funds.....	550.00
Income from investments....	5,668.70
Income from special care funds	67.70
Bills payable.....	500.00
Accounts payable.....	67.85
Building repairs.....	10.00
Expense claim vs. Railroad....	5.00
Expense office.....	1.25
	\$11,268.40
Grand total.....	\$50,368.75
Perpetual care fund increased from sales of lots and single graves.....	\$ 5,431.80
The total expenditures amounted to \$48,782.27.	

GENERAL IMPROVEMENTS.	
Old land regraded and finished, square feet..	16,123
Old avenues regraded and finished, linear feet.....	1,613
Sewer and gully drains built, linear feet....	93
Catch basins built, 1; manholes, 2.....	3
Cement block gutters laid, linear feet.....	603
Cement walks and crossings laid (area 534 square feet).....	107
Brick paving laid at greenhouse, square feet.	520
Foundation built at tool house, cubic feet...	178.5
Water pipes laid, linear feet.....	1,042
Foundations built.....	310
Foundations rebuilt.....	2
Monuments erected.....	49
Grave marks placed.....	286
Trees, shrubs and evergreens planted.....	380
Old lots placed under perpetual care.....	8
Average number of employees per month....	36

THE COVER ILLUSTRATION.

We reproduce on the front cover of this issue a photograph of the striking and effective design of iron entrance gates to the Steers Estate, Portchester (L. I.) N. Y. These massive gates, as well as the ornamental posts and front fence, are a special design of The Stewart Iron Works Co., made in their factory at Cincinnati, Ohio.

These gates are 16 feet wide between the two newel posts on either side and 11 feet high. Frame bars are 2x¾ inches solid; hinge bars, 1¾ inches square. Top rail is 2½x½ inches solid; all other horizontal rails are 1¾x1 inches solid. The top corner scrolls are made of 1x¾ inch steel bars. Ornamental scroll work between top and second rail is made of 1x½ inch material; ring ornaments throughout are of 7⁄8x½ inch. Long pickets are spaced 5½ inches on centers; short bottom pickets are 13 inches long and made with forged-top and mill point at bottom. These gates are hung on eye and socket hinges to massive

newel posts and lock by means of a specially constructed slide bolt. The newel posts are 13½ feet from ground to top scroll and 18 inches long by 9 inches wide, with steel plate base set 3 feet in the ground. They are constructed with 3-inch square corner bars and have hand forged ornamental scroll filling, made of 1x¾ inch material. The large scroll ornament on top of each post is 30 inches from top of post to top of scroll. Posts are braced to concrete piers in a substantial and artistic manner with 1¾x1 inch horizontal rails.

The advantage of a substantial and appropriate iron fence and entrance gateway to large estates is twofold—it affords the necessary protection to the grounds and plantings, serving also to add the finishing touch to the natural beauty of the surroundings and landscape architecture. The design of entrance here referred to is equally as suitable for cemeteries, parks and other public grounds as it is for private estates, being neither ultra ornamental or commonly plain. In fact, we are told by The Stewart Iron Works Co. that since originating this design of gates and posts it has become very popular and is a favorite with cemetery and park superintendents as well as landscape architects. Anyone desiring blueprints with detailed specifications of these gates can take the matter up direct with The Stewart Iron Works Co., Cincinnati, Ohio.

75,000 Rhododendron Maximum for Spring Shipment

ALSO

Kalmia Latifolia	White Dogwood
Azalea Nudiflora	Sugar or Hard Maple
Pines	Stag Horn Sumach
Hemlocks	White Thorn
Cinnamon Fern	Black Alder
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VINCA MINOR (Hardy Periwinkle), strong nursery grown plants. \$3.00 per 100, \$25.00 per 1000; rooted layers, \$1.50 per 100, \$10.00 per 1000.

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We are among the largest growers of ornamental trees, shrubs and plants in America. Hardy varieties a specialty. We employ a competent landscape gardener for the service of our large patronage. Cemetery and Park Organizations are invited to correspond relative to either PLANNING or PLANTING, or both. We will be pleased to make estimates on any proposition.

THE JEWEL NURSERY COMPANY
Est. 1868. Lake City, Minn. 1200 Acres.

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In all sizes, from lining out stock to large specimen 6 ft. and over. ☐ Stock carefully graded and first-class in all particulars. Prices are so low they are almost given away. ☐ Were recently dug to clear ground, and ready for shipment. ☐ Purchasers unable to take present delivery we will hold for Spring shipment. ☐ Write for list and mention this paper.

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*Preserves Roads
Prevents Dust-*



Forest Home Cemetery, Forest Park, Ill. Constructed with "Tarvia X".

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A better and surer way is to bond the surface with Tarvia. Tarviated roads drain immediately and furnish clean footing for pedestrians even after a storm.

Tarviated roads do not soak up any water and accordingly are immune from damage by frost. After a hard winter tarviated roads are found practically unaffected by the season's exposure, while a plain macadam will be ruined.

We do not try to make one product satisfy all road problems, but we make Tarvia in three grades, ranging from "Tarvia X", which is very dense and requires heat for application, to "Tarvia B", which is liquid while cold and will percolate into the fine interstices of a well compacted roadway.

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AND
LANDSCAPE GARDENING



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R. J. HAIGHT, Pres. O. H. SAMPLE, Sec.-Treas.
H. C. WHITAKER, Vice-Pres. and Gen'l Mgr.

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Situation Wanted—A member of the American Association of Park Superintendents, who is superintendent of parks in a Metropolitan northern city wishes to change position on account of political interference with his work. Trained in horticulture, planning and development of parks; has done important work of park development, and is thoroughly familiar with park work of every character; can furnish highest references as to ability to take charge of large city park system. Address "Rocky Mountains," care Park and Cemetery.

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Protects the Shade Trees from the ravages of San Jose Scale, Cottony Maple Scale, Oyster Shell Scale, Leaf Roller, Etc. Use it as a winter spray and save the trees. The best parks in the country use "Scalecide" and "Electro" spray materials.

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Durable as Granite White as Marble Cheap as Wood

Write at once for Prices and Particulars

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Made under Haase Concrete Wkrs. Pat. No. 680,432, and 734,854. Are nearly white and last like granite. Size and prices are, 8, 10, and 12-inch lengths, 3-in. diameter 5 to 7c, 3½-in. 7 to 10c, 4-in. 7½ to 12c, 5-in. 10½ to 17c. "PERPETUAL CARE" posts made in 5-inch diameter. Write for particulars and discount.

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You can do the same thing with a little effort. Write for our liberal terms. We want your help, and you can use the extra money you can make in this way.

Don't delay. This means dollars to you. Winter and spring is the best time to take orders.

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Moore Monument Co.
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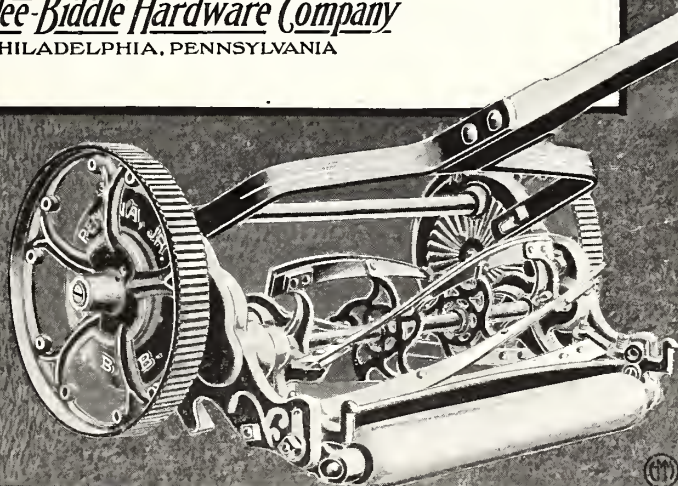
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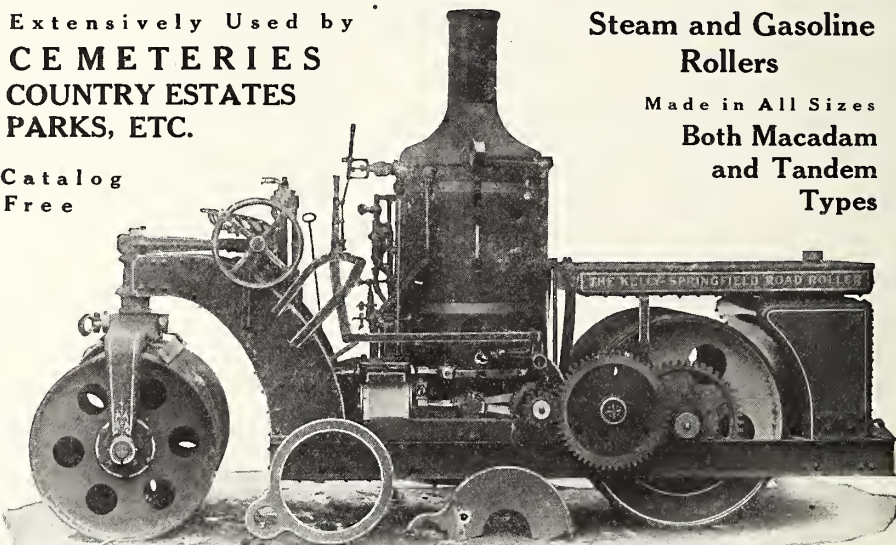
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Underground Quarry at West Rutland, Vermont

The Walls of the Quarry

mean very little to an outsider. In fact, they appear rather grimy and forbidding. But to the skilled quarryman they are never lacking in interest. He can see underneath the surface the outlines of the finished memorial. He has taken out thousands of blocks and he knows just where to look for good marble.

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A BLOCK OF OUR NORWAY MAPLE

We have for spring very nice American Elm up to 2½ inch. Norway Maple up to 1¾ inch; also other shade and ornamental trees. A choice lot of Hardy Shrubs and Perennials, both No. 1 and extra heavy. Let us price a list of your wants. Catalogue Free.

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American Sycamore
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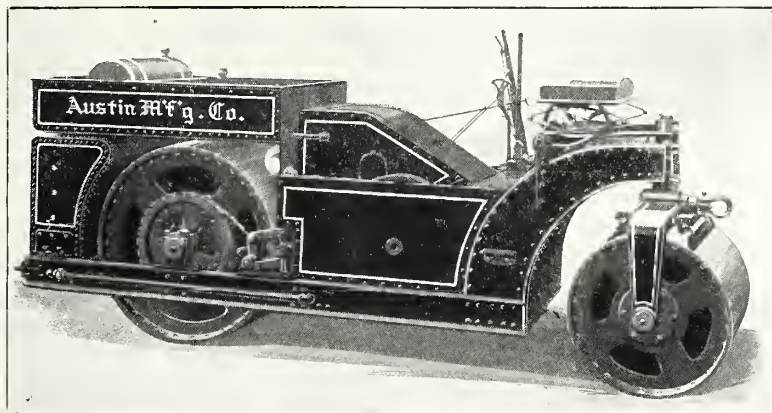
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The machine will prove by its performance our ability to furnish just what paving men have been looking for.

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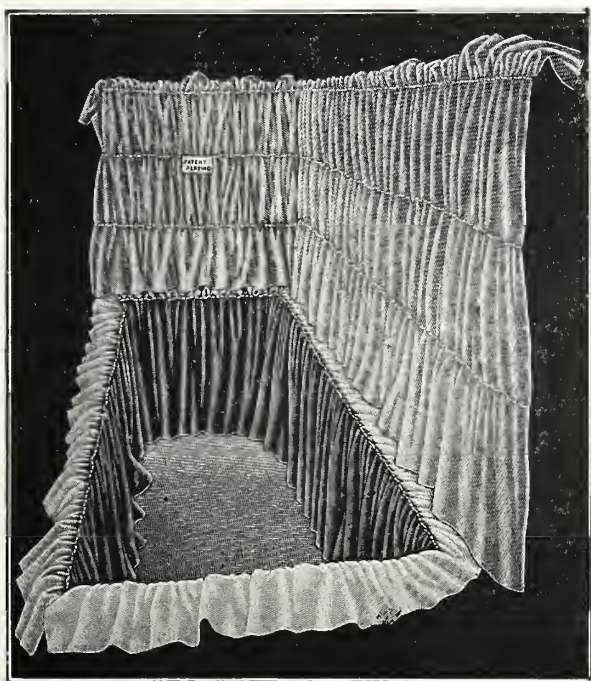
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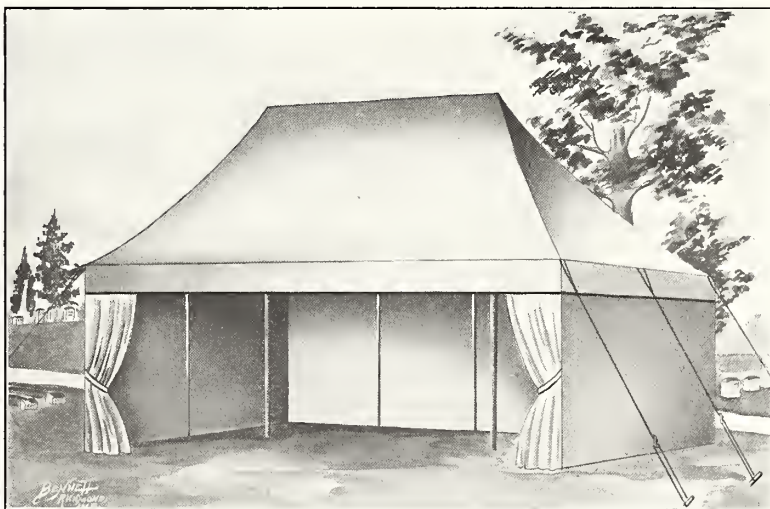
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made to order. Our olive green tents blend with nature and take away the fair

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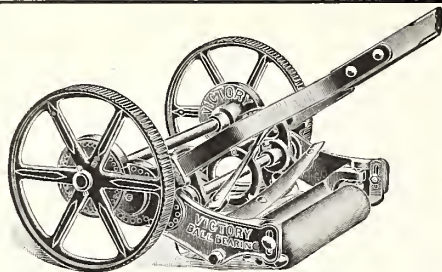
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Lowering Devices, Cemetery Trucks, Casket Racks, and a Full Line of Undertakers Supplies

Doddridge Grave Decorating Co.

MILTON, INDIANA



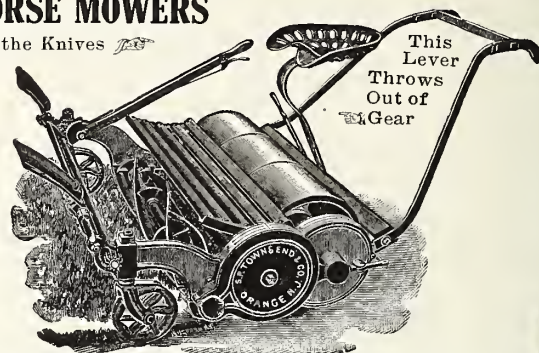
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This Lever Raises the Knives

All Our Hand Mowers
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Tells
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ELECTRIC Steel Wheels

Make hauling 30% to 60% easier;
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Saves Girdled Trees, Heals Cuts and Wounds, Pre-
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Fruit Growers' Supply Depot. Best Tools of All
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Best Harrows for Leveling Purposes.

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Hardy Climbing Vines	Ornamental Trees
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Our illustrated catalog No. 95 describes the above,
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We shall gladly give our time and attention to all
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sery. We shall be pleased to give prices on lists
submitted.

Nurserymen, Florists and Planters
RUTHERFORD :: NEW JERSEY

WE WILL SAVE YOU MONEY ON YOUR
FLOWER POTS
QUALITY AND APPEARANCE THE BEST.

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THE MT. GILEAD POTTERY COMPANY
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We offer hundreds of carloads of Fruit and Ornamental
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Prices are made according to quantity wanted.



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Catalogs free. 1,200 acres, 46 greenhouses; have best
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Ornamental Trees, Evergreens, Shrubs, Roses, Peonies, Etc.

We have a splendid assortment of well grown hardy stock adapted to
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One of the Most Complete and Best Equipped Nursery Plants in the United States

CALL SPECIAL ATTENTION TO

MAPLES: Silver, Hard, Weir's, Purple Leaved; ELM: American White;
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Send us list of wants, we are always pleased to quote prices.
Complete price list on application.

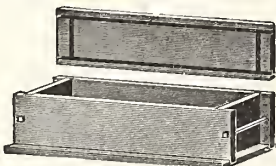
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STRUCTURAL SLATE OF ALL KINDS

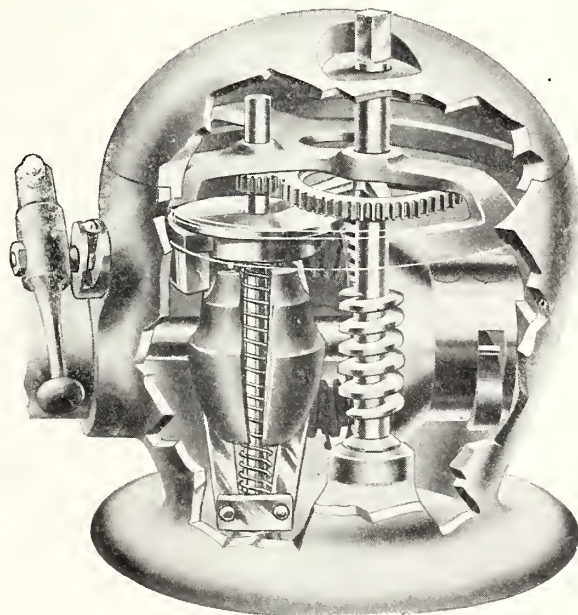
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Three parts—a Bevel Gear, a Worm Gear and a Governor

These three—and the greatest of these is the Governor. They do the work—in the Simplest and Safest Device ever invented

“Safety First”



FRIGID
Auto-Control
Lowering
and Raising
Device

STUDY IT OUT—THEN WRITE US



DON'T buy any more old style devices—first find out whether we really have a lowering device that can't drop a casket. See if we really can deliver a device that don't require you to do the work—that does the lowering itself automatically. Find out if we speak the truth when we tell you that all you need to do is to start the machine and that you can then walk away if you like while the machine lowers the casket. Find out if we have the most beautiful device on the market. See whether it is the easiest to set up; easiest to carry about, and lightest in weight. Also, see if, as we claim, it will lower the smallest casket or the largest grave vault. Find out if we have the safest webbing with side instead of center detachers.

It costs you just one cent for a postal to get in touch with us. We may save you many a heartache and many a humiliation—send the postal now.

FRIGID FLUID CO.

217 So. Western Ave.

::

Chicago, Illinois

JOE BOMGARDNER

THE VETERAN LOWERING DEVICE MANUFACTURER

HAS THE FOLLOWING TO SAY ABOUT LOWERING DEVICES:



HEY must be compact, both for transportation and the amount of space they occupy when placed over a grave, especially in length. Monuments and head stones often will not allow more than three inches at the ends of the grave, therefore the foot end of a lowering device should not be more than an inch thick, and the head end two inches thick.

"They must be compact, both for transportation and the amount of space they occupy when placed over a grave, especially in length. Monuments and head stones often will not allow more than three inches at the ends of the grave, therefore the foot end of a lowering device should not be more than an inch thick, and the head end two inches thick.

"Give the brakes a little thought, and believe you will be convinced that friction is the only safe method of controlling a dead weight. Look at the large cranes which handle immense beams, used in the construction of great buildings, bridges, etc., where men stand on these heavy weights and swing into midair with perfect safety. Friction controls them, more especially so when the cranes are operated by electricity. Friction brakes control entirely every train, street car or automobile when an emergency arises where lives depend on prompt and reliable action.

"Think these facts over:

"In the past fourteen years as many as twenty-five different lowering devices have been invented, some of them have been put on the market, and some have never reached the public eye. But what should impress you is the fact that every one of them embodied cog wheels, or gears, in some form, and every one had to take them out. They simply will not work consistently where the propelling force cannot be increased or diminished, and you know that a dead body does not increase or diminish in weight while being lowered into a grave.

"Nothing has come out that I have not tried out to my entire satisfaction, and I know that nothing in the shape of a delicate and sensitive device for controlling the lowering of a dead weight will ever be a success, where every conceivable condition must be met.

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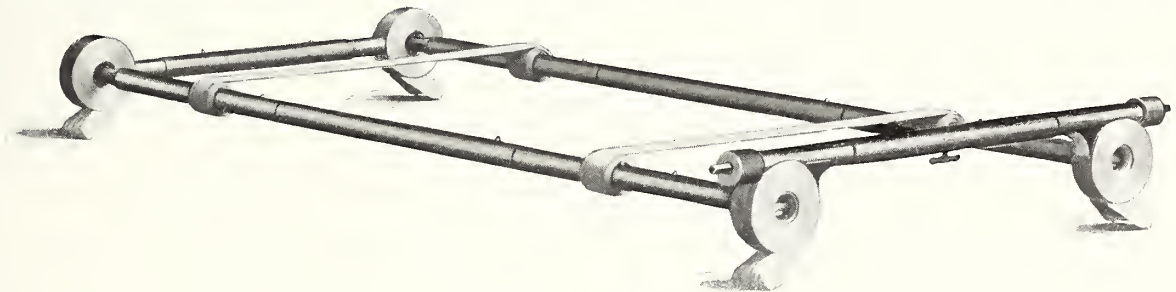
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A Word to the Superintendents of Cemeteries:

IF you are about to buy a device or contemplate the purchase of one in the near future, you can not afford to buy until you have first thoroughly investigated the

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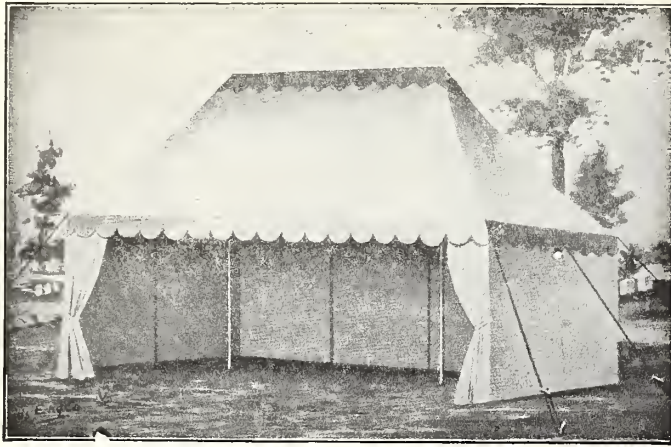
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Dear Sir—Please send at once full information, together with circular of your NEW WELLMAN AUTOMATIC LOWERING DEVICE.

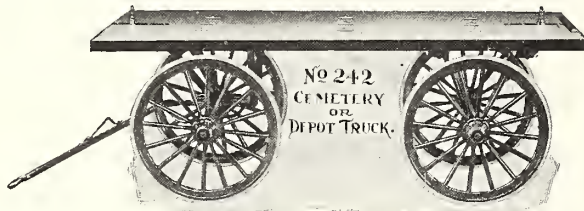
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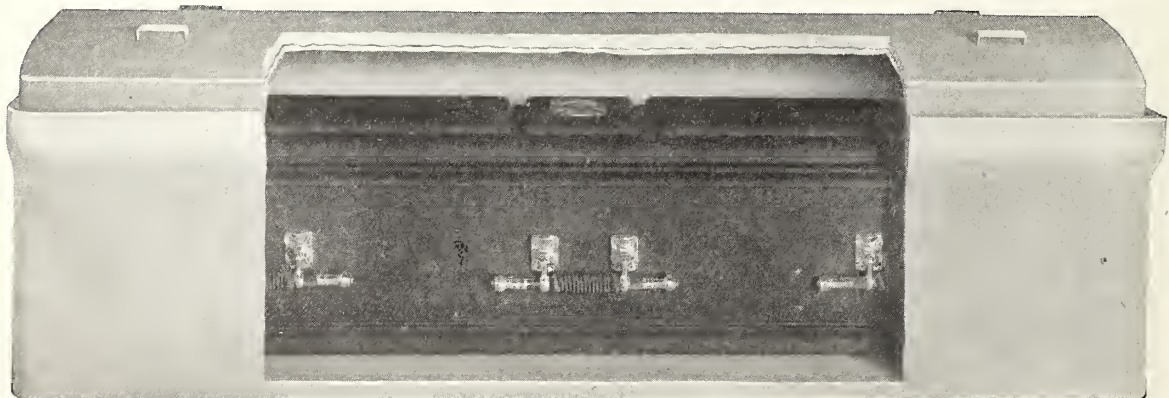
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Durfee Grave Dirt Cover
Made in oval form, of green duck,
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will fit any grave, is a handsome
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The National Steel Reinforced Cement Burial Vault

The National Vault is made by water-proof process throughout with 24 gauge expanded metal, making it absolutely water, germ and ghoul-proof, and will support any weight put upon it incidental to burial. An everlasting receptacle that can be removed from the ground at any future time without fear as to appearance or condition.

Visible seal which is absolute. The "National" is the only light weight cement vault that has stood the test of years of experience. Sells at a price within reach of all and gives a handsome profit.

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The National Mold which produces the National Vault is made of 13 gauge steel and is substantially built; wet process used on walls and bottom of vault; no troweling being necessary. Anyone can operate under our instructions.

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SPRAYING AND CARE OF TREES

Power Spraying and Power Sprayers—Cemetery Water Supply and Drainage—Fighting the
Tussock Moth in Buffalo—Insect Damage to National Park Trees—Trimming and Train-
ing the Carolina Poplar—Lime-Sulphur Spray and Its Use—The Literature of Spraying



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Iron Fence
7 ft. high

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Iron Fence and Entrance Gates Designed and Built by
THE STEWART IRON WORKS CO., CINCINNATI, OHIO.

Recess Gateway
85 ft. Entrance

See page 242

MULLINS STEEL BOATS CAN'T SINK



A LETTER from one Boat Livery Man to Another READ IT!

LAKE ORION SUMMER HOMES CO., Phoenix, Arizona
Detroit, Mich.

Attention of Mr. Jno. Winter.

Gentlemen—It is a pleasure to us to recommend the Mullins Steel Boats. It was, however, with much difficulty that we made up our minds when buying the first carload, as we were offered other Steel Boats at less price, but after a thorough investigation, and writing personal letters to the different users, we bought our first carload of Mullins Non-Sinkable Boats in February, 1911, and in May of the same year, we ordered another car, and in early spring of this year we bought still another car of Row Boats, Cedar Canoes and Launches, and have during that time shipped at least a carload by local freight.

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BUFFALO PITTS ROLLERS

Designed and built with a special view to utility in Cemeteries and Parks.

Made in all types and sizes.

Please write to us when interested in the purchase of a roller.

BUFFALO STEAM ROLLER CO., Buffalo, New York



THE
KEWANEE
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DEPENDABLE WATER SERVICE *for* PUBLIC GROUNDS AND INSTITUTIONS

SOME PARKS, CEMETERIES AND COUNTRY CLUBS WHERE KEWANEE SYSTEMS ARE USED.

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Idle Hour Park.....Mouree, N. Y.
Nollans Park.....Akron, Ohio
Logan Park (for Calhoun Baths).....Minneapolis, Minn.
City Park.....Freeport, Ind.

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Tyrone Country Club.....Tyrone, Pa.
Highland Country Club.....Meriden, Conn.
Williamsport Country Club.....Williamsport, Pa.
Country Club.....Jefferson City, Mo.
Youngstown Country Club.....Youngstown, Ohio
Milwaukee Country Club.....Milwaukee, Wis.
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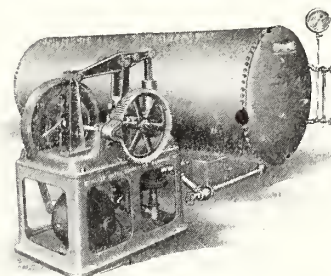
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ONE OF MANY ENDORSEMENTS

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"Before installing the system we made a very careful investigation of the various systems and finally decided on yours. We have no reason to regret our action—on the contrary, we might say that if it is possible to improve upon it, we are utterly unable to see in what particular it could be done."



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Calcium Chloride

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That rust, corrode or become weather-beaten from exposure. Bronze is the eternal, durable metal. It colors beautifully in the open air and harmonizes with the beauty of your landscape. Six different designs.

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Here is what Oak Woods Cemetery, Chicago, says about them:

"The best stake for the purpose on the market, being made of bronze, it stands the weather, and having no bolts or nuts in the center, it will always remain where it is placed, and the plate at the bottom is the best safeguard that the stake cannot be removed."

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PUBLISHED BY ALLIED ARTS PUBLISHING COMPANY

R. J. HAIGHT, President

H. C. WHITAKER, Vice-President and General Manager

O. H. SAMPLE, Secretary-Treasurer

VOL. XXIII

FEBRUARY, 1914

No. 12

EDITORIAL

Practical Encouragement To Tree Planting

The Massachusetts Forestry Association has adopted a unique and interesting method of stimulating tree planting by offering a prize to the town or city in that state which properly plants this spring the greatest number of shade trees in proportion to population. The prize will be the free planting of a mile of street or road in the winning town with shade trees at least seven feet high. The association in offering the substantial prize of two hundred trees does not do so with the feeling that the prize itself will be the chief incentive in reviving shade-tree planting in this state. Many towns have not planted any shade trees for years. Arbor Day has failed of late to create the desired effect, and the results have been very unsatisfactory. There is something about working in unison which lends a spirit to the work, and a little feeling of rivalry is expected to result in unusual activity among the members of this association in nearly every town of the state. The rules of this contest are based on the population, thus giving the small town an equal chance with the large

city. To the average town this prize is well worth working for, and the satisfaction of winning is worth more than the intrinsic value of the trees. Many towns are already planning tree-planting campaigns this year and are expected to enter this contest with real spirit. The prize will be awarded by a competent committee appointed by the association, which will visit the town having the highest per cent to check up the work, and if the planting is found unsatisfactory, the committee will have power to consider the city or town next highest in the list. The trees must be of reasonable size and the work must be properly done in order to win the prize. In case the winning town does not have a mile of street in one stretch which has not been planted to trees, the committee may plant two hundred trees in different parts of the town or city. The plan is well calculated to stimulate an interest in tree planting and is suggestive of effort that might be organized in other states and other communities.

Horticulture at San Francisco Exposition

Many features of horticulture, planting and landscape gardening will provide exhibits of interest to those engaged in outdoor improvement at the Panama Exposition in San Francisco in 1915. The thousands of great trees which are being brought from every country in the world to be transplanted at the exposition are scientifically treated by experts to prevent their dying. The side roots are first cut and side-boards placed down the cuts. Six months later, when the tree has become accustomed to receiving nourishment only from its bottom roots, these are cut and a bottom board attached to the side roots, making a great box. The tree is then hoisted by derrick and shipped by land or sea to San Francisco, where it is replanted in special soil brought from the Sacramento River, seventy miles away. By a special system of rotation originated by John McLaren, superintendent of San Francisco parks, every flower of the million plants of the tropical garden at the exposition will be in full bloom during

the ten months the exposition will be open to the public. A duplicate of every plant will be kept in the nurseries, green-houses and lath-houses, and as one in the open ceases to bloom a forced plant will be substituted for it. More than 25,000 cubic yards of rich soil was towed from Collinsville, on the Sacramento River, to the grounds, to be used in the tropical garden which will form the setting for the great exhibit palaces. A reproduction of the Yellowstone National Park will be one of the features of the concession district. A standard gauge railroad will run through the concession, taking visitors seemingly through the entire park. In the center of the concession reproductions of the geysers and springs which have made the Yellowstone the wonder of the world will be set upon a great revolving table. The cost of the concession is estimated at \$550,000 and it will be one of the most complete of its kind ever built.

Editorial Notes!

The American Forestry Association has members in every state in the Union, in every province in Canada, and in every civilized and semi-civilized country in the world. It has a total membership of 8,000.

On the Pocatello forest, Idaho, 230,000 trees were planted during the past year, and almost half a million in the past three years, fully three-fourths of which are alive and doing well.

There are somewhat more than 560 recognized tree species in the United States, of which 100 are commercially important for timber. Of the 500 recognized species, 300 are represented in the government's newly acquired Appalachian forests. All American species, except a very few subtropical ones on the Florida keys and in extreme southern Texas, are to be found in one or another of the national forests.

A rancher has applied for the rental of 320 acres on the

Pike national forest, Colorado, to be used in connection with other private lands for raising elk as a commercial venture.

The state university lands in Arizona are to be lumbered under a co-operative agreement between the government and the state land commission. Arizona is the first state in the Southwest and one of few in the country to put its timbered lands on forestry principles.

The legislatures of Virginia and South Carolina are considering advanced forestry legislation.

The Kaibab and the Coconino national forests adjoin each other. Yet it takes from two to three days to go from one to the other across the Grand Canyon of the Colorado.

B. E. Fernow, dean of the forest school of the University of Toronto, and Bristow Adams, of the U. S. Forest Service, have just been elected president and secretary, respectively, of the Society of American Foresters, the only organization of professional foresters in the western hemisphere.



SPRAYING WAS DISCONTINUED ONE SEASON ON THE TREES AT THE RIGHT, WHILE THOSE AT LEFT WERE SPRAYED; NOTE THE DIFFERENCE.



TREES IN CAMBRIDGE, MASS., KILLED BY ELM LEAF BEETLE AND LEOPARD MOTH.

POWER SPRAYING AND POWER SPRAYERS

No longer do those entrusted with the care of our shade trees and forest preserves attempt to ignore the fact that spraying is their most important aid. Nor do they attempt to dispute the fact that it is better economy to spray and preserve than it is to put off and lose what nature has required many years to produce. One of the worst examples of this neglect is seen in the ugly stumps in Cambridge, Mass., that once boasted of its magnificent old trees.

Not only has this city lost many of its beautiful shade trees and been put to the expense of cutting them down and removing the stumps, but to the cost of replant-

ing the neglected district and cultivating the young trees. Not only must scores of years elapse before the city can point with pride to its trees, but during this period the spraying which would have saved the original plantations must be resorted to to preserve the new ones.

The question of protecting forest trees is a very important one and is being overlooked almost entirely by farmers and individual owners who have shade trees, although in some localities they realize the necessity of spraying these trees in order to keep them in a healthy condition. In many instances where the forest trees are sprayed a gasoline power spraying outfit is

used, and instead of the ordinary spraying nozzle, which makes a fine mist spray in the form of a cone shape, they use a straight nozzle, which throws a stream 40 or 50 feet in height. For small shade and ornamental trees, however, the smaller outfits have been used.

Opinion among sprayers is divided as to the relative merits of the "mist spray" and the "solid stream" method. The "mist spray" is widely used in fruit tree work, and for many years this was the only method. Unquestionably, good results may be secured by it in any spraying, but in shade trees or forest work, where tall trees are sprayed, it is sometimes considered too



FITZHENRY-GUPTILL SOLID STREAM SPRAYER OPERATING TWO NOZZLES ON TALL TREES IN BOSTON PARKS.



SPRAYING EQUIPMENT OF TAUNTON, MASS., READY FOR BUSINESS.



HIGH DUTY SOLID STREAM
SPRAYING BY BOSTON PARK AND
RECREATION COMMISSION.



SPRAYING BIG TREES IN PUBLIC SQUARE OF TAUNTON, MASS.

expensive to permit of extended work. This often causes those equipped with such apparatus to limit their field of operations to the badly infested areas, with the result that limited suppressive or exterminative results are accomplished.

The "mist" sprayers claim that more detailed and effective work can be done in reaching every leaf and twig by getting the mist nozzle in close contact to the point of infection. This is done by using long hose

extensions and spraying handles; by ladders or scaffolding on the spraying machine conveyance.

Some advance the argument that a tree cannot be properly sprayed with a "solid stream," and the term "solid stream" is sometimes misleading and requires some explanation. The difference between the "solid stream" and the "mist" method is that in one case the stream itself is used as a means or vehicle for elevating the solution

to its proper height, where it is broken up into a fine mist, while in the other case a hose is used to elevate the solution and must be carried into the trees to within a few feet of the spraying operations.

Many sprayers are improperly catalogued as "high pressure." Of course, it is possible to raise the pressure on nearly any of the standard fruit sprayers to 250 or 300 pounds pressure per square inch while operating one or two mist nozzles. These



GOULD'S SPRAYER AT WORK ON SHADE
TREES, SHOWING METHOD OF OPER-
ATING "MIST SPRAYER" OUTFIT.



DEMING SPRAYER AND OUTFIT FOR
MIST SPRAYING OF SHADE TREES.



ONE HORSE MIST SPRAYING OUTFIT IN USE ON LOW TREES.

machines, however, if attached to a "solid stream" nozzle would give a much lower pressure.

In "mist" spraying a nozzle with a fine hole which is usually fitted with some mechanical device for breaking up the solution into a mist is used, while in "solid stream" work the solution is delivered from an open bore nozzle with sufficient force to break it up thoroughly into a fine mist-like spray after attaining its greatest height.

During the early stages of "solid stream" experiments nothing above 200 pounds pressure on a 1/4-inch nozzle was attempted. From a series of tests made recently, one manufacturer of high power sprayers now recommends that at least 225 pounds per square inch nozzle pressure be used, to which must be added the head loss due to hose friction to get the proper initial pressure.

In ordinary municipal work the lines average about 500 feet, while in wooded areas for practical work they are often extended to 1,500 feet. In solid stream forest work it is often found necessary to raise the initial pressure on such lines to above 350 pounds per square inch, because with a lower pressure after it has suffered the loss due to hose friction the solution is not delivered with sufficient velocity to break it into a fine mist-like spray after attaining its height.

Some sprayers maintain that the elm leaf beetle can be held in check only by the "mist" method as it was generally supposed that the under side of the foliage had to be sprayed. Others contend that if a leaf is sprayed either top or bottom while the adult beetle is feeding, the results are satisfactory and the spraying cost reduced.

In purchasing a high duty sprayer, one with sufficient power to spray the highest trees should be selected. It is a great aid to economical spraying to use a machine capable of spraying all the trees from the ground, and reduce as far as possible the labor item. If a sprayer is not powerful enough to throw a mist from the ground to the tops of the highest trees, enough men must accompany it to handle the ladders, the hose and the apparatus.

For general spraying a horse-drawn machine is most generally used, but under certain conditions a power truck sprayer can be used and will actually lessen the cost of the work. In extensive operations there often are outlying districts or scattered infestations to be sprayed, or a strictly roadside proposition with great mileage to cover, and in such cases a power truck sprayer can be used to advantage.

WINTER WORK TO DESTROY LOCUST BORER

The cutting of the locust tree for all purposes, including thinning operations and for private commercial use, should be done between the first of October and the last of March. To destroy the locust borers before they enter the wood, the removal of the bark from all desirable portions of the trunks of the trees felled is important and necessary. Tops and thinnings should be burned.

The yellow striped, long horned, winged beetle that produces the devastating borer is found from August to October on trees and the flowers of the goldenrod. During this period eggs are deposited in the crevices of the bark of growing trees and the young borers, after being hatched, pass the winter there and in the spring bore through the bark to the heart of the tree.

The injury to the trees consists of wounds in the bark and sapwood, which if sufficiently severe and repeated year after year, result in a worthless growth or the death of the timber affected. The numerous worm holes in the wood also reduce its commercial value.

The presence of the insects in injurious numbers is indicated at this season of the year by the frequency of the adults on the goldenrod flowers and on the trees. So extensive has the damage of this pest been in some sections of the eastern states and the middle west that it is now considered unprofitable to grow the tree for either shade or timber. One important reason for holding this borer in check is to prevent its extension into the far west and other sections which are at present free from it.

Experiments have demonstrated that the grubs may be killed by spraying the trees and branches with a strong solution of kerosene emulsion. This should be done earlier than November and not later than

March, because this spraying when the trees are in leaf will destroy the foliage and check growth.

This emulsion may be prepared as follows:

Kerosene Emulsion (Soap Formula)

Kerosene	2 gals.
Whale-oil soap (or 1 qt. soft soap) 1/2 lb.	
Water	1 gal.

The soap, first finely divided, is dissolved in the water by boiling and immediately added boiling hot, away from the fire, to the kerosene. The whole mixture is then agitated violently while hot by being pumped back upon itself with a force pump and direct discharge nozzle throwing a strong stream, preferably one-eighth inch in diameter. After from three to five minutes' pumping the emulsion should be perfect, and the mixture will have increased from one-third to one-half in bulk and assumed the consistency of cream. Well made emulsion will keep indefinitely and should be diluted only as wanted for use.

For the treatment of large orchards or in municipal work requiring large quantities of the emulsion it will be advisable to manufacture it with the aid of a steam or gasoline engine, as has been very successfully and economically done in several instances, all the work of heating, churning, etc., being accomplished by this means.

The use of whale-oil soap, especially if the emulsion is to be kept for any length of time, is strongly recommended, not only because the soap possesses considerable insecticide value itself, but because the emulsion made with it is more permanent, does not lose its creamy consistency, and is always easily diluted, whereas with most of

the other common soaps the mixture becomes cheesy after a few days and needs reheating to mix with water. Soft soap answers very well, and one quart of it may be taken in lieu of the hard soaps.

In limestone regions, or where the water is very hard, some of the soap will combine with the lime or magnesia in the water, and more or less of the oil will be freed, especially when the emulsion is diluted. Before use, such water should be broken with lye, or rain water employed.

For use on locust trees dilute one gallon of emulsion with two gallons of soft water.

Pure kerosene and pure petroleum will effectually kill the insects, but may do some damage to the bark of the trees.

Experiments with carbolic emulsion indicate that this preparation is of no value to kill the young grubs.

According to Dr. Howard, Chief of the Bureau of Entomology, the brown and apparently dying condition of the yellow or black locust trees in the states of Virginia, Maryland, Pennsylvania, West Virginia and Ohio is caused by the insect known as the locust leaf-beetle. Nearly every summer the brownish appearance of these trees attracts attention and causes considerable inquiry and some alarm. However, with a few exceptions, the trees recover and come out fresh and green the following spring.

A more complete description of the locust borer and methods for its control may be obtained from Circular No. 83 of the Bureau of Entomology, which is written by A. D. Hopkins, in charge of Forest Insect Investigations. The bulletin contains photographs of the borer.



NO. 6: BEFORE.



NO. 7: AFTER.



NO. 9: RESULT, FOLLOWING SEASON.

THE CAROLINA POPLAR AS A CITY SHADE TREE

By A. T. Hastings, Jr., City Forester, Jersey City, N. J.

II. Treatment of Poplars Already Planted.

The poplar should not be cut back until it is at least eight inches in diameter at the ground. Cut back to the desired height, cutting enough, however, to obviate the danger of the snapping off of large limbs during high winds and at the same time cut back all side limbs. I have for the past few years experimented on the different methods of cutting back the poplar. The standard method of trimming a tree is to make all cuts close to a growing limb or on a line with the trunk, so as to leave no knobs or stumps on the tree. Following out this rule, I selected a street having close to one hundred poplars of different sizes growing on both sides. Each cut was made close to a branch, cutting off at least one-third of the top as well as of side branches, but at the same time cutting so each tree was of the same height after being trimmed. The accompanying photo-

graphs, Nos. 6 and 7, show the method pursued. The following summer produced the beautiful results as shown in photograph No. 9. It will be seen that a close growing, well shaped head crown resulted from this trimming. The entire street presented a beautiful sight the following summer—photo No. 10. Instead of wide spreading, irregular growing trees, no two alike, were seen close growing uniform trees. All danger of breaking limbs removed and the leaves large and found to remain on the trees much later.

On another street several poplars were cut back, as shown in photo No. 11, with no regard as to any rule of trimming. The limbs were simply cut off wherever it became necessary to preserve uniformity of height, leaving long, unbranched stumps. The results of this trimming the following summer produced the amazing results as shown in photo No. 12. As in the case of the more careful trimming, a well shaped, close

growing tree resulted. However, resulting from this latter method of trimming, a few trees died the following summer, after a few weeks' growth had started, resulting probably from the removal of so much leaf surface at one time. In the more careful method of trimming I have never lost a tree and have trimmed many thousands that way. In this method a considerable more leaf surface is allowed to remain on the tree than in the other case. All these trees were allowed to grow two years. The resulting growth is shown in photos Nos. 14 and 15. It will be noted that the growth is much the same in either case as to length and amount and also as to the large amount of growth coming from the sides of each cut. I had hoped to control this by cutting back to a branch, as it is a bad feature. I expected that the small branches that were allowed to remain would so draw the sap and energy of the tree as to preclude the growing of so large



NO. 11: ANOTHER METHOD OF CUTTING BACK.



NO. 12: RESULT, FOLLOWING SUMMER.



UPPER PICTURE: NO. 14, TWO YEARS' GROWTH. LOWER PICTURE: NO. 16, THIS BEAUTIFUL RESULT FROM YEARLY TRIMMING.

a number of new twigs, but it did not result. After two years' growth all these trees should be again cut back to prevent the trees obtaining too great a height. The large amount of new growth can be thinned out and the growth that is allowed to remain cut back, so as to result in a well-shaped head. If this is done each year a result as shown in photo No. 16 can be obtained. In fact, almost any shape may be obtained and preserved by careful trimming each year. The cost of such trimming, however, is almost prohibitive. It would take a man at least two hours to cut back each tree. Figuring eight hours to the day, he would trim four trees each day, and if he is paid at the rate of two dollars a day, a very low rate, it would cost fifty cents per tree per year. In a city having many thousand of these trees it would require thousands of dollars annually to maintain them.

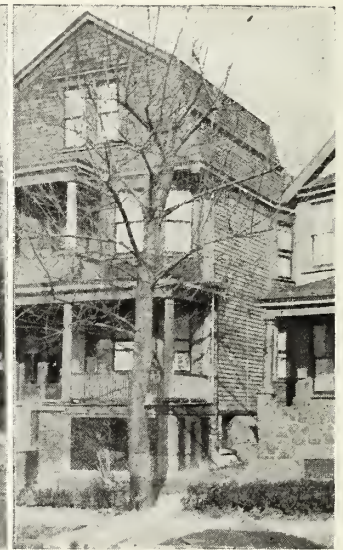
It would be practical, however, to trim back the trees as illustrated in photo No. 11, which is very rapidly done, and at the same time plant a new tree close by, the cut-back poplar allowed to grow undisturbed

until the young tree has a few years' growth. By this time the old poplar will need trimming badly, but instead of trimming it this time cut it down entirely. The result would give a desirable tree, very easily maintained in good condition, with very little outlay of labor and money.

In all discussion of Carolina poplars as a city tree stress must be laid on the fact that the tree is the very poorest of all city trees. This fact must be constantly brought forward and sustained by pointing out examples. One heavy wind storm in the summer, when the trees are weighted with leaves, will blow many of the poplars down. Let the public know this. Feature it for the next few days in the local papers. If one is on the lookout it will be very easy to obtain from some plumber a piece of sewer pipe entirely blocked up with roots of poplar trees. If it becomes impossible to convince anyone that the poplar is a poor tree, plant a new good tree close to a poplar tree and then point out each day the difference in the trees. After a few years consent can be obtained to remove



NO. 10: RESULT OF CUTTING BACK ON ENTIRE STREET.



NO. 15: TWO YEARS' GROWTH.

the old tree. And above all, prohibit the further planting of Carolina poplar.

(Concluded.)

LIME SULPHUR SPRAY AND ITS USE

By A. G. Ruggles, Chief of Section of Spraying and Tree Insects, University Farm, St. Paul, Minnesota.

The lime-sulphur solution was first used as a sheep dip. Some twenty years ago a few orchardists in the Pacific coast states began to use this material as a scale insecticide. Since then its rise in the spraying world has been very rapid. Without question, it is the best scale insecticide known. It is a good contact insecticide and in stronger proportions is a rodent repellent. More recently it has come into prominence as a fungicide, and, still more recently, some experiments by the United States Department of Agriculture seem to show that it is a fairly good stomach in-

secticide. Some of our own experiments at the experiment station show that it will control the codling moth to a certain extent. As this material is a solution and not a mixture, and has all the above qualities, it approaches the nearest to the ideal spray compound that has yet been discovered. Such being the case, a few words concerning the making of this spray and its application will not be out of place.

The principal ingredients of this spray are lime and sulphur. When first brought into prominence, salt formed an important element in the formula. Later it was found

that salt was not at all necessary, often being even a detriment.

The two forms of the wash which are used more than any others at the present time are the self-boiled and the concentrated. The former is primarily a fungicide and is particularly valuable against the diseases of the peach; hence, it is not necessary for us to spend any time with it here.

Of the boiled lime-sulphur washes, the latest and best formula is the concentrated. The material in this form is now put on the market by some of the large commer-

cial firms and has generally proved entirely satisfactory.

As the business firms putting up this material have, or should have, all the apparatus necessary for good work, under ordinary conditions it would not pay the average man to spend time and labor in the disagreeable task of making it. It may be, however, that a large fruit grower has the facilities for making the wash or perhaps the commercial companies have formed a combine and raised the price. To prevent an undue rise in price, therefore, it is necessary that the ordinary fruit grower should know just how this material is made. The formula is as follows:

Fifty pounds fresh unslaked lime.

One hundred pounds sulphur thoroughly and finely pulverized.

Water to make fifty gallons.

The lime must be as pure as can be obtained—at least 90 per cent oxide; 95 per cent is better. Hydrated or the slaked form of lime may be used. It takes one-third more hydrated, and the heat of slaking is lost. Under no conditions, however, should air-slaked lime be used. In making this material, ten gallons of water are placed in a large iron kettle. The fire is started and then the lime is added. As soon as the slaking starts, add the sulphur and mix thoroughly. Great care should be taken not to burn the sulphur and not to drown the lime. A happy medium is necessary for the best results. When the lime is thoroughly slaked and in the condition of thin paste, the rest of the water is added. It is best to give an excess of water and boil down to the correct volume. Thorough stirring is absolutely necessary. (One should wear goggles and always keep to the windward.) Boil until the granules are all dissolved. To determine this, dip out a quantity and examine the pouring closely.

Sometimes forty minutes will suffice for the boiling. At other times, it will take two hours, depending upon the material

used. From fifty to sixty minutes are generally necessary. If boiled too little, the sediment increases. The same may be said of too much boiling, but, of the two, too much is better than too little. The material is then strained immediately into the barrel or spray tank. The sludge may then be thrown away, although it does no harm. The S. G. of the boiled material should be about 1.24 or 28.5 Baume. The material should always be tested before diluting for use. In the commercial products, greater densities are obtained, usually about 1.30 S. G. or 33.5 Baume Scale. In such cases there should be a guarantee that the material contains no extra, unnecessary ingredients. Otherwise the S. G. reading will be of no use.

As stated before, there is no important advantage in the home preparation of this material. The knowledge of how to make it guards against extortion.

Properly protected, this lime-sulphur can be preserved indefinitely. It must not, however, be left exposed to the air or allowed to evaporate. The material should not be stored in vinegar barrels nor should certain arsenicals be mixed with the material. In storing in an open vessel, it should be covered with any heavy oil. Freezing does not hurt the material, except that it may burst the containers.

In getting the correct amount of dilution for spraying, the decimal of the S. G. of the concentrate is divided by the decimal of the spray desired. This will give the total dilution necessary. For instance, for scale insects, a S. G. of 1.03 is necessary; for apple scab, a S. G. of 1.01. If the S. G. of the material in hand is 1.30, then the amount of dilution for the scale spray is 10; for the scab it is 30. In almost all bulletins or discussions on the subject of lime-sulphur there are tables giving the correct dilution for every S. G. If one remembers the principle, however, the dilution can readily be worked out.

In using lime-sulphur, copper in all its forms is to be avoided. Iron or brass parts of spray pumps are preferable. In any case, however, the spray machinery should be thoroughly washed out with clear water after each and every spraying.

In our investigations at the experiment station we have found that iron sulphate, three pounds to fifty gallons, adds very much to the sticking qualities and possibly adds somewhat to its stomach insecticidal value. This is a point we are working out at the present time.

For red spiders on trees often the lime-sulphur does not seem to spread very evenly over the smooth leaves. It is found that soap, which ordinarily is used as a spreader for other insecticides, is not only useless, but harmful with this material. Recently it has been found that flour paste acts as an excellent spreader with lime-sulphur; in the preparation of the paste one pound of flour is used in each gallon of water. The material is cooked until a paste is formed. Eight gallons of this paste is required for 100 gallons of the spray mixture.

Although we have found that lime-sulphur is a good all-around spray, it would not be wise to depend upon it for all leaf-eating insects. Hence, some stomach insecticide is usually added. The only arsenical insecticide that can be used in combination with lime-sulphur is arsenate of lead. Never use any other form.

The poor results from spraying that one so often hears about are due, nine times out of ten, to poor spraying, poor in its application and poor in the amount spread over the individual tree. Ordinarily, spraying should stop just before the material begins to run off in large drops. Thoroughness with all sprays is essential, and this holds just as true for the lime-sulphur as with the others. Every leaf and branch of the tree must be well covered, and the stronger the pressure behind the nozzle, the better.

FIGHTING THE TUSsock Moth IN BUFFALO

By H. B. Filer, City Forester, Buffalo, N. Y.

The principal insect pest that we have to contend with here in Buffalo is the tussock moth. This caterpillar has caused a vast amount of injury to the foliage of Buffalo, but we have it practically under control at the present time.

Our method of elimination has been to spray with arsenate of lead, at the rate of one pound to ten gallons of water. This solution is applied approximately from the 25th day of May until the 1st of July, depending largely on weather conditions. We have always found this to be quite effective, one application doing the work. We have been greatly handicapped in our work owing to the carelessness of the property owners in not having the trees on private property taken care of.

After the spraying campaign is finished and the caterpillars have gone into cocoon,

we send our men throughout the streets to collect and destroy all cocoons that can be found. This is quite an expensive operation, yet it is almost necessary to work the two in conjunction with each other—that is, the spraying and the destroying of the cocoons—in order to meet with any great degree of success.

We have had a few minor pests to deal with, such as the web worm, tent caterpillar and some of the scale insects, and at certain seasons we have found it necessary to spray the aphids.

We have seventeen power sprayers and several hand sprayers, which enable us to take care of practically every tree in the city of Buffalo. The spraying, however, is but a small part of our tree work.

During the past five years we have pruned and otherwise treated practically every tree

on every street in the city. We have an annual appropriation of \$75,000, which enables us to maintain quite a large working force.

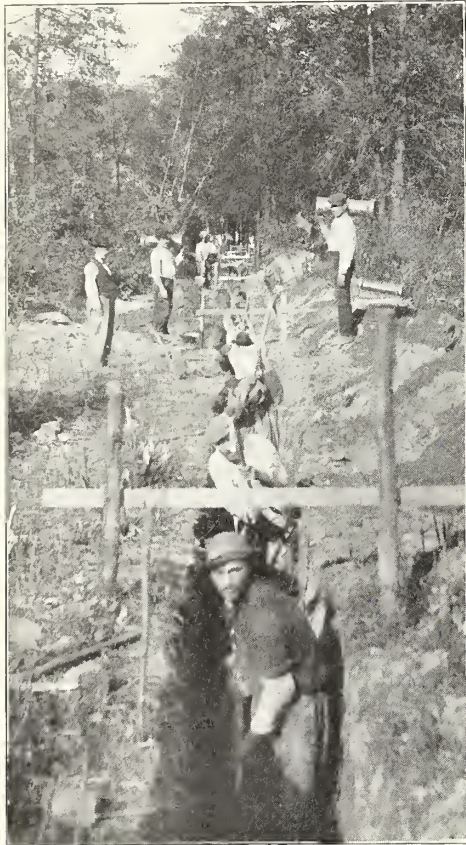
Each fall and spring we plant new trees on thoroughfares that are more or less barren, using one variety on a street and planting them at equal distances apart, thereby assuring uniformity for all time. We have planted over 25,000 young trees ranging from 3 to 5 inches in diameter during the past five years. These trees are making rapid progress and will undoubtedly add much to the beauty of the city, which is famed far and wide for the luxuriousness of its tree growth.

The city of Buffalo is doing more work each year in the care and preservation of the street trees than any other city in the United States.

COMPLETE DEVELOPMENT OF A MODERN CEMETERY

By Otto Sonne, Landscape Engineer.

II. Water Supply and Drainage System.



DRAIN TRENCH, SHOWING BATTER BOARDS.

It is needless to expatiate on the importance to a large cemetery of the question of water supply and drainage; for obvious reasons both are as essential to the proper maintenance as to any community, and the drainage perhaps more so.

The uses of water are both numerous in their variety and extensive. The buildings must have a supply of pure water that should come from some distant source and be of a quality above question; then water is needed for fountains, watering purposes over the entire cemetery, sprinkling of roads, and, if available, to reinforce the flow in the brook during exceptionally dry seasons. For the latter purposes ordinary surface water will serve, and if opportunity offers it may be good economy to obtain it on the grounds under certain precautions, to which reference will be made later.

In the case of the North Arlington Cemetery, the diocese made an agreement with a water company by which the water company was to have a right of way along the west and south boundary line for a thirty-inch main and in return supply the cemetery with pure water up to one million gallons per year, the rest to be paid for by the diocese. This amount is ample for the buildings, but very far from being adequate for the other purposes; however, the

present system of piping is laid on the supposition that all water needed is to come from this source. The object in view has been to have pipes leading to the various buildings, also to a series of flush lawn hydrants with hose connection distributed over the grounds and close enough together to have a 100-foot hose reach practically every point, and in addition to a number of standard hydrants along the roads at larger intervals, to enable individual owners to fill a pail for use on their lot or lots. To this end a main circuit was laid of two-inch pipe, covering the main part of the area, and from this secondary circuits of 1½-inch pipe, with branches of one-inch pipe supplying single hydrants, or two or three at the most. The pipes were laid four feet or more below the surface, to be below frost. They were placed principally along the roads, about two feet outside the edge, and where needed between roads they were laid in the center of such grass paths as were planned to separate lines of lots. In this way no ground was lost and it was possible to reach any point desired. A number of valves were inserted into the system for the purpose of being able to shut off the water from minor sections during repairs without interfering with the supply at large. Fig. 1 shows as an illustration the method employed in distributing the pipes and hydrants, as explained above. It should be added that wherever the pipes pass under a road they are laid in a conduit of six-inch vitrified pipe, so that they may be removed and replaced without disturbing the surface of the road.

The drainage problem naturally embraces two distinct parts, the surface drainage and sub-drains, to which may be added a third, sewerage.

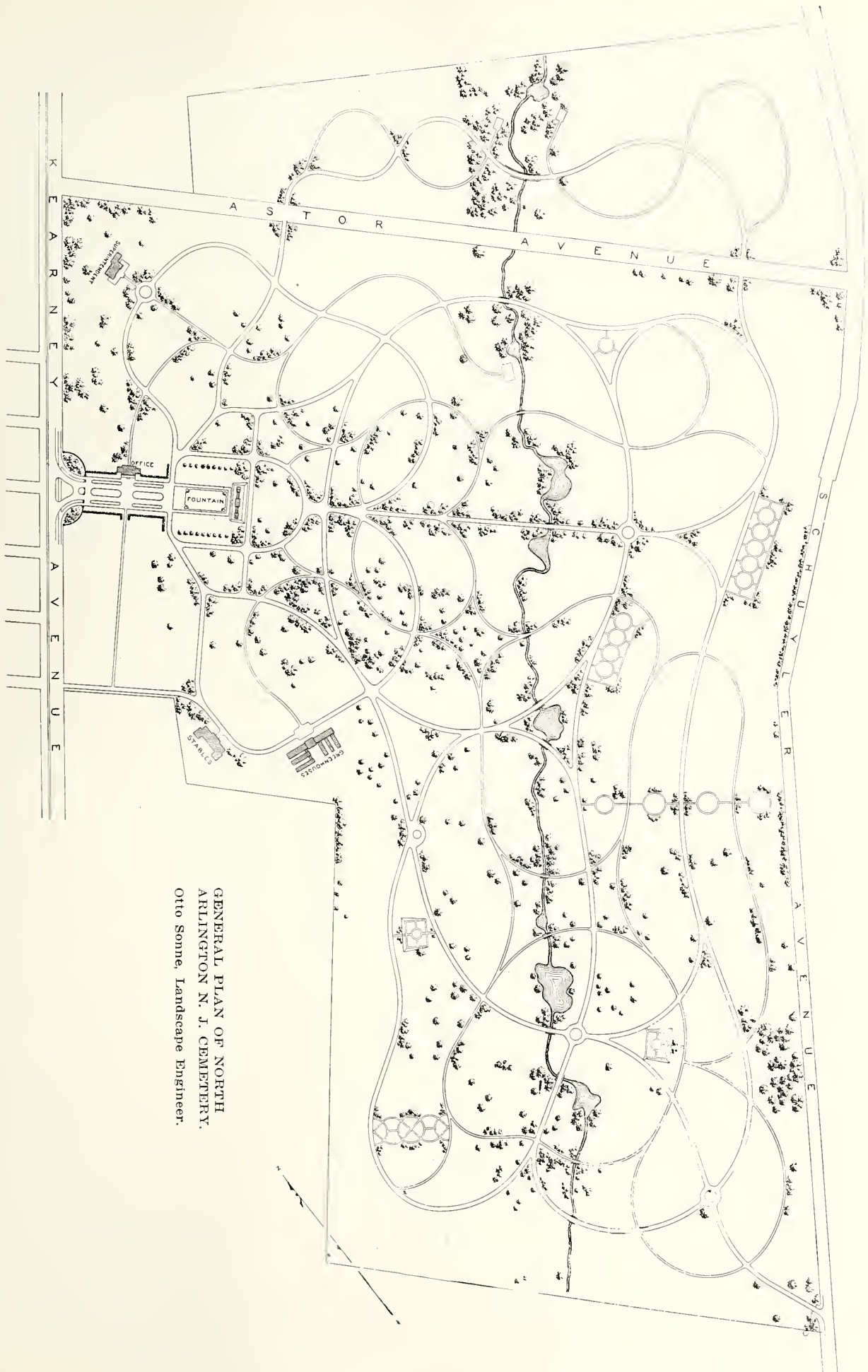
The surface drainage presents no unusual features. The rain water that is not absorbed by the lawns seeks the roads and reaches the catch basins that have been built at frequent intervals. Each catch basin is connected by vitrified drain pipe, laid in cement, with a system of drains not less than six inches in diameter, generally laid under the roads to a depth of four feet or more and with outlets to the brook at certain convenient points. Part of the rainfall, of course, goes to the brook direct. The emptying of these drains into the open brook can under no conditions be objectionable, as they contain positively nothing but surface water; but it is different with the sub-drains. These form a separate system and consist in lines of French drains, so called, vitrified pipe six inches or more in diameter, laid with open joints at a depth of not less than seven feet and in many cases ten feet, the lower



TRENCH FOR FRENCH DRAIN IN NORTH ARLINGTON CEMETERY.

two feet of the trench being filled with field stones, giving the ground water a chance to enter the trench and the pipe at any point. The main line of French drains is carried along the low ground near the brook to the north boundary line, and several laterals and branches serve secondary valleys and such places as during construction have shown signs of water bearing strata below the surface. These drains are in constant activity, tending to dry out the ground, and should in course of time show a permanent effect over a large area on both sides of each line; in fact, with the ground sloping towards them, generally providing a generous fall, the system should keep down the ground water over practically the entire area.

Near the northern boundary line it is intended to turn the French drains into a close sewer built by the borough. The diocese made an agreement with the borough by which the former should build a sewer lengthwise through the cemetery from south to north, able to take care of the sewage from the part of the borough lying south of the cemetery, and the borough should extend this sewer from the cemetery north to some outlet or disposal plant. This has not yet been carried out, owing



GENERAL PLAN OF NORTH
ARLINGTON N. J. CEMETERY.
Otto Sonne, Landscape Engineer.

to failure on the part of the borough to enter into a discussion of the sizes, etc. This projected sewer will serve as an outlet for sewage from the various buildings,

Flush lawn hydrants.....	378 pieces
Standard hydrants	50 "
Drains laid in cement, 6 in. to 12 in.	32,200 lin. ft.

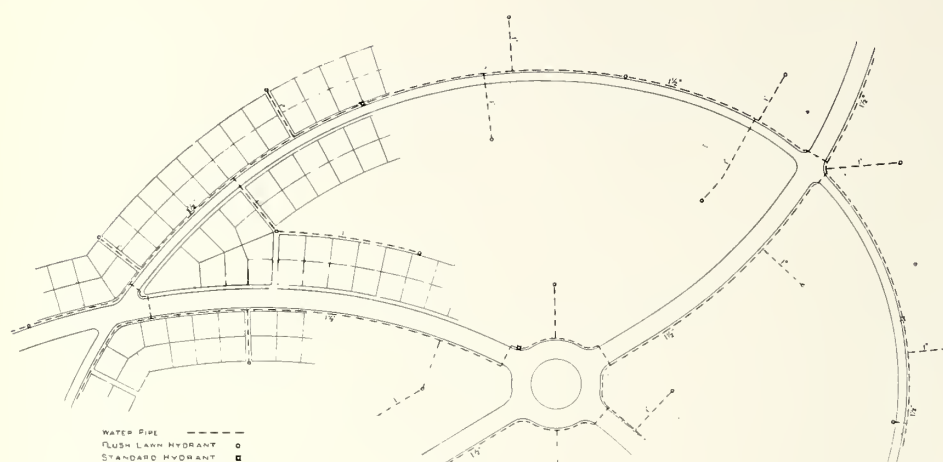


FIG. 1. ARRANGEMENT OF WATER PIPE AND HYDRANTS; ONLY PART OF THE LOT INDICATED.

and the necessary laterals have been laid with this in view, but, of course, they cannot be used until the main line is laid.

The following is a list of the quantities used in obtaining the results outlined:

2-in. galv. wrought iron pipe.	7,600 lin. ft.
1½-in. galv. wrought iron pipe.	44,400 "
1-in. galv. wrought iron pipe.	15,900 "

French drains, open joints, 6 in. to 8 in.....	9,250 "
Sewers, laterals, 6 in.....	3,150 "
Catch basins along roads.....	275 pieces
Catch basins on lawn.....	10 "

Without entering into the question of economy, which will vary greatly according to local conditions, it may be added

that the writer has considered the advisability of establishing a local pumping station for the purpose of obtaining water for watering purposes. At first thought it seem inadvisable, inasmuch as in course of time the ground water might be polluted from the graves, but with certain precautions taken it seems justified. If a tight well is sunk to some considerable depth no ground can get into it without first being filtered through a corresponding layer of soil, and by surrounding it with loose stones as far down from the surface as drainage can be provided the bulk of the ground water coming from near the surface will be given an easier outlet through the drains and the possibility of having objectionable water enter the well will be negligible. This question may serve as a basis for some discussion.

Naturally the work described above does not lend itself advantageously to photographic representation; the views of trench work, however, will give an idea of depth and also of the method of staking out the lines with batters, boards fastened above the trench a suitable number of feet above the grade of the drain, provided with nails on the center line between which a line is drawn taut and permits verification of the depth and line at any point during the laying of the drain.

[Photographs for this series of articles furnished by courtesy of Fairfield Landscape & Nurseries Co.]

(To be continued.)

FINES FOR MISBRANDING INSECTICIDES

Notices of Insecticide Act judgments have been issued recently by the Department of Agriculture, regarding the following cases:

A fine of \$200 was imposed on the James A. Blanchard Co., of St. Joseph, Mich., for shipment into Nebraska of misbranded lead arsenate; for shipment into Iowa of misbranded Paris green, and for shipment into Iowa of lead arsenate which was adulterated and misbranded. The lead arsenate shipped into Nebraska bore a label which stated that it contained 15 per cent arsenic oxide, which statement was proved false by analysis. Each package of Paris green that was shipped into Iowa purported to contain one pound net, whereas each package contained less than one pound net. The label on the adulterated and misbranded lead arsenate which was shipped into Iowa claimed soluble arsenic oxide less than 75/100 of 1 per cent, which statement was untrue.

A fine of \$100 was imposed on the Blumauer-Frank Drug Co., of Portland, Ore., for shipment into the state of Washington of "Whale Oil Soap" which was misbranded. The label stated: "This soap is highly and universally esteemed as a destroyer of moths, worms, lice and all insects that infest plants, shrubs and trees; it also operates as a fertilizer to the plant

or tree." Tests by the Department of Agriculture showed that the product was not effective in destroying all insects that infest plants, and that it did not contain any substance that would act as a plant fertilizer.

A fine of \$25 and costs was imposed on the C. G. Betts Co., Spokane, Wash., for the shipment into Idaho of a quantity of insecticide called "Inland Lime-Sulphur Spray." Misbranding was alleged because it consisted partially of water, and neither the name and percentage amount of this inert ingredient, nor in lieu thereof the names and percentage amounts of each and every ingredient having insecticidal or fungicidal properties and the total percentage of inert ingredient were stated on the label.

A fine of \$25 was imposed on the Hood River Spray Manufacturing Co., Oregon, for shipment into Washington of an insecticide known as "Niagara Spray." Misbranding was alleged because the article consisted partially of water and the label neither stated the name and percentage amount of this inert ingredient, nor in lieu thereof the names and percentage amounts of the ingredients having insecticidal or fungicidal properties and the total percentage of the inert ingredient.

A fine of \$25 was imposed on J. C. Pier-

son, of New York City, for shipment into Colorado of an insecticide designated as "Stott's Fir Tree Oil Soap." The label on this mixture read: "Effective for killing scale, mealy bug, red spider, aphids and all insects that infest plants. It keeps palms in a fine, healthy condition. It is an excellent wash for dogs." Misbranding was alleged for various reasons. The word "Stott's" on the label was considered misleading, as the name of the manufacturer was not "Stott," but was the Thompson Carbolic Soap Co. The insecticide also was not effective for killing San Jose scale or for killing aphids and all insects that infest plants, and the statement on the label that it contained 85 per cent of soap was also discovered to be untrue.

A fine of \$25 was imposed on Peter Kerr, Thomas Kerr and Andrew Kerr, co-partners doing business under the firm name of Kerr, Gifford & Co., of Portland, Ore., for the shipment into the state of Washington of a quantity of "Hemingway's Pure Lead Arsenate" which was adulterated and misbranded. The substance consisted of more than 50 per cent water, although the label stated that it contained only 50 per cent water. The label also claimed that it contained 15 per cent arsenic oxide and 32 per cent

lead oxide, both of which statements were untrue, the product containing less than these amounts. The label also stated that the package weighed "two pounds net," whereas each can contained less than two pounds net of the article.

A fine of \$10 and costs was imposed on the Grasselli Chemical Co., of New Or-

leans, La., for shipment into Florida of adulterated and misbranded arsenate of lead paste. The article was adulterated because it contained more than the 50 per cent water allowed by the law and the excess water was not declared. The product was misbranded because the label stated not over 50 per cent water, claimed 15 per

cent arsenic oxide, and claimed the contents of the package as one pound, whereas, in fact, the product contained over 50 per cent water and contained less than 15 per cent of arsenic oxide, and the package contained less than one pound on a 50 per cent water basis.

THE LITERATURE OF SHADE TREE SPRAYING

No study of spraying, or insect pests or of tree troubles can be all inclusive for a wide range of territory, and the first thing for the tree guardian in park, cemetery, street or estate is to make a careful study of his local conditions, of the insects he has to fight, of the trees under his care, and of the progress they have made. Every such study must be more or less localized, and the assistance of the state agricultural authorities should be the first aid sought. Nearly all the state agricultural experiment stations or agricultural colleges have issued bulletins and done experimental work on tree problems and tree pests.

When the information they have is secured and assimilated, and a careful study of the trees to be treated has been made, the tree doctor is in a position to diagnose his case and apply the standard treatment best suited to the trees and shrubs under his care.

The first step of the inexperienced sprayer should be to get all of the official bulletins or literature of the experiment stations or colleges and study them to assimilate the material that may have any bearing on his problem, and then to get catalogs of the manufacturers of the machinery and materials needed.

Following is a digest of some of the leading bulletins and publications that deal with the spraying and care of ornamental trees:

"Spray and Practice Outline for Fruit Growers, 1913," by H. J. Eustace and R. H. Pettit; Special Bulletin No. 61, Michigan State Agricultural Experiment Station, East Lansing, Mich.; 24 pages; illustrated.

"Some Important Insects of Illinois Shade Trees

and Shrubs," by Stephen A. Forbes, State Entomologist; bulletin No. 151, University of Illinois Agricultural Experiment Station, Urbana, Ill.; 72 pages; illustrated.

"What is the Matter with the Elms in Illinois," by Stephen A. Forbes, State Entomologist; bulletin No. 151, University of Illinois Agricultural Experiment Station, Urbana, Ill.; 24 pages; illustrated.

"Control of Two Elm Tree Pests," by Glenn W. Herrick; bulletin No. 333 of Cornell University Agricultural Experiment Station, Ithaca, N. Y.; 24 pages; illustrated.

"Fungicides, Insecticides, and Spraying Directions," by George E. Stone and Henry T. Fernald; bulletin No. 123 of Massachusetts Agricultural Experiment Station, Amherst, Mass.; 32 pages.

"The Imported Elm Leaf Beetle," bulletin No. 76 of the Hatch Experiment Station of the Massachusetts Agricultural College, Amherst, Mass.; eight pages.

"Three Insect Enemies to Shade Trees," by L. O. Howard, Entomologist; Farmers' Bulletin No. 99, United States Department of Agriculture; 32 pages; illustrated.

"Information About Spraying for Orchard Insects," by A. L. Quaintance; reprint form Year Book of United States Department of Agriculture for 1908; 24 pages; illustrated.

"Tree Planting and Care of Street and Highway Trees," by George A. Cromie, Superintendent of Trees, City of New Haven, and Walter O. Filley, Assistant State Forester, Connecticut Agricultural Experiment Station; document No. 8 of the Civic Federation of New Haven, Conn.; for sale for ten cents by Robert A. Crosby, Y. M. C. A. Bldg., New Haven, Conn.

"Fruit Growers' Spray Calendar," by N. E. Shaw; Bulletin No. 11, Ohio Department of Agriculture, Division of Nursery and Orchard Inspection, Columbus, O.; sixteen pages.

"The More Important Insect Pests Affecting Ohio Shade Trees"; bulletin 194, Ohio Agricultural Experiment Station, Wooster, O.; 72 pages.

"The Control of Insect Pests and Plant Diseases"; bulletin 283, Cornell University Agricultural Experiment Station, Ithaca, N. Y.; 32 pages; illustrated.

"The Elm Leaf Beetle," by Glenn W. Herrick; circular No. 8, Cornell University Agricultural Experiment Station, Ithaca, N. Y.; eight pages; illustrated.

"Shade Trees; their Care and Preservation," by Albert D. Taylor; bulletin 256, Cornell University College of Agriculture, Ithaca, N. Y.; illustrated; 42 pages.

"Important Insecticides"; Farmers' Bulletin 127, United States Department of Agriculture.

"Tree Planting on Rural School Grounds"; Farmers' Bulletin 134, United States Department of Agriculture.

"Scale Insects and Mites on Citrus Trees"; Farmers' Bulletin 172, United States Department of Agriculture.

"The Chestnut Bark Disease," by Haven Metcalf; separate 598 from United States Department of Agriculture Year Book for 1912.

"Power Spraying"; catalog of Fitzhenry-Guption Company, 49 N. Washington St., Boston, Mass.; illustrated discussion of solid stream spraying.

"Insect Notes for 1912," Bulletin 207, Maine Agricultural Experiment Station, Orono, Me.; 42 pages; illustrated.

"The Secret of the Big Trees," by Ellsworth Huntington; for sale by Superintendent of Documents, Government Printing Office, Washington, D. C., for five cents; 24 pages; illustrated.

"Annual Report of the Superintendent of Gypsy and Brown-Tail Moth Work of the City of Fitchburg"; from annual report of the park department of Fitchburg, Mass.; 14 pages; illustrated.

"Planting and Care of Shade Trees in St. Louis," Vol. I, No. 4, of the Bulletin of Missouri Botanical Garden, St. Louis, Mo.; 12 pages; illustrated.

"The Chestnut Blight Disease," Bulletin No. 1 of the Pennsylvania Chestnut Tree Blight Commission, 1112 Morris Bldg., Philadelphia; 12 pages; illustrated.

"Treatment of Ornamental Chestnut Trees Affected with the Blight Disease"; Bulletin No. 2, of the Pennsylvania Chestnut Tree Blight Commission, 1112 Morris Bldg., Philadelphia; 12 pages; illustrated.

"Rules and Regulations for Carrying Out the Plant Quarantine Act"; Circular No. 44, Office of the Secretary, United States Department of Agriculture.

"The Annual Report of the Massachusetts Agricultural Experiment Station for 1913"; papers on various causes of injury to shade trees; device for planting white pine seed and weed extermination discussed. Copies of the report can be obtained by addressing the Massachusetts Agricultural Experiment Station, Amherst, Mass.

OFFICIAL COMMUNICATIONS

H. S. RICHARDS, Chicago, President



AND CONTRIBUTIONS

J. J. LEVISON, Brooklyn, N.Y., Sec.-Treas.

Denver Convention Proceedings.

The proceedings of the fifteenth annual convention of the association at Denver have been issued, and there are still some extra copies on hand that may be had on application to Secretary Levison. All members have been provided with copies.

New Lowell Park and Playground.

The Municipal Council of Lowell, Mass., recently voted to buy a tract of land in a section of the city known as West Centralville, to be used as a public park and playground. The land is in a much congested

part and was the property of the Locks & Canals Co.

It comprises 22.84 acres, having a frontage on Aiken street of 325 feet, running northwesterly along the bank of the Merrimac River some 1,300 feet to what is known as Beaver Brook, thence easterly to Lakeview Avenue, with a street frontage of 225 feet.

Plans were prepared of this proposed park early in the summer by John Woodbury Kernan, engineer and superintendent of parks, and presented by him before the

Municipal Council. Several hearings were held before the Council, at which many arguments were advanced favoring the purchase.

On December 31, 1913, the Council voted to purchase the land from the Locks & Canals Co. for \$33,000, which was the price asked. A loan covering a period of twenty years was authorized, but on January 7, 1914, the new city government voted to rescind the action of last year's Council, and the matter is now held in abeyance for further consideration.

INSECT PESTS OF THE GREENHOUSE

*Address before the Floral Society of Minnesota, by
William Moore, of the University of Minnesota Farm.*

The chief pests of the greenhouse which might be considered in this paper are scale insects, mealy bugs, the white fly, the green fly, the red spider, thrips, sow bugs and snails. These are, no doubt, generally known to florists, and although there are various species included under these different groups, it is not necessary to go into the details of the species.

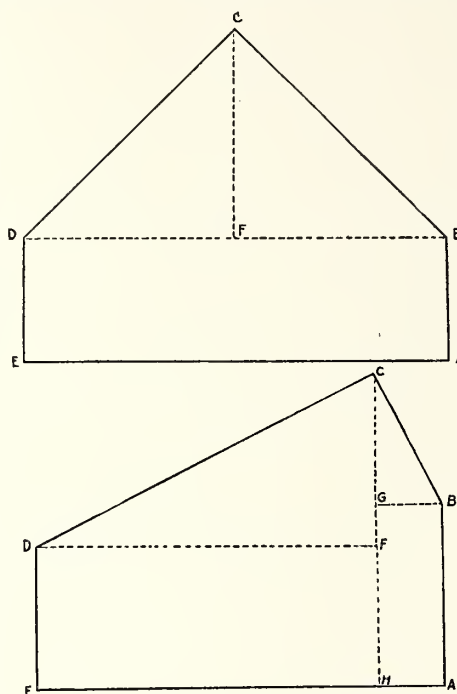
The purpose of the talk here given is to be rather a brief discussion of some of the better methods of combating these various pests. The first to be considered might be the sow bugs and snails. The best measures to be adopted in the case of these is to prevent an attack by keeping the house well lighted, not allowing rubbish to accumulate, and doing away with dark, damp places. In other words, a well-built, up-to-date greenhouse should be comparatively free from either of these pests.

In this connection it might be noted that several florists claim to have obtained very good results by using sugar and paris green to destroy the sow bugs. This is laid on boards on the table and is said to be readily eaten by the sow bugs. These two pests, however, are of minor importance.

Probably the most universal pests of the greenhouse are the various species of green flies found therein. To these might be added species of thrips, since the treatment is the same for both. The best measure to adopt against these two pests is fumigating with tobacco. This fumigation is done by burning tobacco dust or tobacco ribs or some of the standard preparations put up for that purpose, such as nicofume paper. Tobacco should be always placed on the floor, as the fumes rise rapidly, and if placed on the level of the table would not have the opportunity of coming in contact with the plants in the same way as they otherwise would.

There is one group of plants which cannot be fumigated by means of tobacco, and that is violets. Fumigation with tobacco will spot the leaves of violets and should never be done.

This brings us to another treatment which is oftentimes used, almost universally, for insect pests of the greenhouse, namely, fumigation with potassium cyanide. Unfortunately, a number of factors enter into the question as to whether the cyanide will kill the plants in the greenhouse or not. A number of experiments have been conducted by different people and many different results have been obtained, from which there seems to be some relationship between the temperature of the house and the burning of the leaves by the cyanide. The humidity is also another factor which must be considered, as it seems probable that the greater the humidity the



greater the chances are of the cyanide burning the foliage of the plants. Another factor which makes the fumigation of greenhouse plants difficult is the great variety of plants which may be in the infested house, since one plant can stand a strong dose of cyanide while another one will succumb to even a weak charge of cyanide. It must be remembered first that potassium cyanide and its gas are deadly poisonous, and the greatest care should be taken in handling it. Fumigation should be done during the night, as if it is done even on a cloudy day it is apt to burn the foliage of the plants. The plants should not be watered or sprinkled directly before fumigation, nor should water be standing about on the floor in puddles, although the floors may be slightly damp.

To fumigate a house with cyanide it is necessary first to ascertain the number of cubic feet in the greenhouse. This is oftentimes neglected, with the result that the charge of cyanide used destroys many valuable plants. Taking a cross section of the greenhouse which has both sides equal in height, we will letter the house A for the lower right-hand corner; B for the upper right-hand corner; C for the apex of the house; D for the upper left corner, and E for the lower left corner. Due to the slanting roof, one cannot measure directly the number of cubic feet. By multiplying the height of side of house by the width of the house we will get the number of square feet in the portion of the house represented by A, B, D, E. Multiplying the number of square feet in this portion by the length of the house, we get the number of cubic feet in the lower portion of the greenhouse. To obtain the number of

cubic feet in the upper portion which has the slanting sides it is necessary to divide the section of the greenhouse into two right triangles, from the bottom of the house to the apex. The height from the bottom to the apex should be measured, and from this the height of the side should be subtracted. This will give us the height of the right triangle from C down to a point directly beneath it, which we will call F. This distance, multiplied by the distance from D to F, will give the number of square feet in the two triangles C D F and B C F. This multiplied by the length of the greenhouse will give the number of cubic feet in that portion. The number of cubic feet in these two different portions is added together, making the number of cubic feet of space in the greenhouse.

When one side of the greenhouse is higher than the other side, the method of obtaining the number of cubic feet is somewhat more complicated. In such a case, let the lettering be the same as in the previous case, with the side A B higher than the side D E. In this case, we will have to measure the distance from E to a point H, which is at the floor directly underneath the apex of the house. This distance multiplied by the height D E will give the number of square feet in the portion of the greenhouse D E H F. Multiplying by the length will give the number of cubic feet in that portion of the greenhouse. Measuring then from A to H and multiplying A H and A B will give the number of square feet in the section A B G H. That multiplied by the length gives the cubic feet in that portion of the greenhouse. We now have two right triangles to get the number of square feet. We take the distance D F, which is the same as E H, and multiply that by the distance of C F, which is equal to the difference between C H and D E. Dividing the product by 2 gives the number of square feet in the angle D C F. Multiplying this by the length gives the number of cubic feet in that portion. The portion C G, which is the difference between C H and A B, multiplied by B G, which is equal to A H, and dividing by 2 gives us the number of square feet in B C G, which is then multiplied by the length to give the number of cubic feet. The sum of the cubic feet in these four different portions gives the number of cubic feet in such a greenhouse.

A greenhouse should always be measured and the number of cubic feet carefully worked out before fumigation is started.

The material used in fumigation is potassium cyanide, sulphuric acid and water. In an earthenware crock is placed the desired quantity of water and to that is slowly added the sulphuric acid, stirring

during this time. While the mixture is still hot from the heat thus generated, the potassium cyanide is added. In fumigating a greenhouse it is well to have the cyanide divided into several different portions and placed in several different crocks, so as to distribute the gas evenly throughout the whole house. The best way to do this is to have the sulphuric acid and water mixed in the crock and the cyanide in a manilla paper bag suspended by a string over the top of the house. This string is connected in such a way that the cyanide can be lowered into the jars from the door of the greenhouse, thus eliminating all danger of the person being poisoned by the cyanide gas. The ventilation of the house should always be fixed in such a way that they may be opened from the outside to ventilate the house after the fumigation is completed. The mixture is made in the proportion of one ounce of potassium cyanide to one fluid ounce of sulphuric acid and three fluid ounces of water. The amount of cyanide used in a house, per thousand cubic feet, will vary according to the insects which it is desired to kill. Plants can usually stand a strong charge of cyanide for a short time or a weak charge for a longer period of time without injury. Plants can also stand more cyanide at a lower temperature, such as 60 degrees, than at a higher, such as 80 degrees. For fumigation against the white fly, the violet aphid, mealy bug, etc., from three to five ounces of cyanide is used to each thousand cubic feet of space to be fumigated, and the charge is left in for from twenty minutes to two hours or longer. For scale insects, it is usually necessary to use a stronger charge, as high as six ounces per thousand feet. Different plants can stand different amounts of cyanide, but much depends upon the condition, and the smaller dose of cyanide should be first tried. If the cyanide has killed some of the insects, but not all, and has not injured the plants, a stronger dose may be used.

In fumigating for scale insects, it might be well to use six ounces of cyanide, but in this case one should pick out the plants having scale insects and try a few in a separate portion of the house or in a fumigation box before using the cyanide for all the plants.

Three ounces of cyanide to a thousand cubic feet has been used successfully on ferns, while the double English violets will stand a dose of six ounces to a thousand cubic feet without injury. Single violets like the California or the Princess of Wales are slightly injured by six ounces to a thousand cubic feet and it would be advisable to use four ounces to a thousand cubic feet in the case of single violets. The temperature of the house should be about 60 degrees or very little above 60 degrees. Five ounces to a thousand cubic feet have been used over night for cucumbers without injuring the plants.

One ounce to a thousand feet has been used for tomatoes without injury. One-third ounce to a thousand cubic feet has proved beneficial for aphids on lettuce, radishes, etc., without injury to the plants. Roses, carnations and chrysanthemums have in most all cases been injured by cyanide, and so little is known about the proportion which these plants will be able to stand that it is advisable not to use cyanide where they are present. Cyanide will be found beneficial for the aphid on violets, since we cannot fumigate them with tobacco fumes. When fumigation is completed, the house should be opened from the outside before anyone enters, as the gas is deadly.

Cyanide does not always kill the red spider, but rather recently some investigations by Mr. Parker, of the U. S. Bureau of Entomology, which has resulted in the discovery of a spray for the red spider, has proved to be both cheap and effective. This spray consists merely of flour paste. It is prepared from a cheap grade of wheat flour, making a thin batter without lumps, using cold water and diluting this until there is one pound of flour to each gallon of the mixture. This mixture is cooked until a paste is formed, stirring constantly to prevent caking or burning of the paste.

BOOKS REVIEWED.

The fourth revised edition of "The Improvement of Towns and Cities," by Charles Mulford Robinson, has recently been issued, bringing down to date this valuable standard work on the problems of modern town and city building. The steady demand which the earlier editions of the book enjoyed has justified this new revision, chronicling the accomplishments of the twelve years since the first edition was published. The work still stands pre-eminent in its field and reveals a striking development in popular progress in improvement work. The author has brought many years of practical study and world-wide travel to his aid in here outlining and tracing in systematic form practically every avenue of modern city making. A few of the chapter titles that will be of particular interest to PARK AND CEMETERY readers and that will give some idea of the scope of the work are the following: The site of the city; the street plan; the tree's importance; possibilities of gardening; parks and drives; squares and playgrounds; function and placing of sculpture; work of individuals and societies.

["The Improvement of Towns and Cities, by Charles Mulford Robinson; G. P. Putnam's Sons, New York; price \$1.25.]

The Harvard University Press announces the issue of "City Planning: A Comprehensive Analysis of the Subject Arranged for the Classification of Books, Plans, Photographs, Notes and other collected material; with Alphabetical Subject Index; by James Sturgis Pray, Chairman, School of

Unless it is well cooked, the spray will not be effective. If overcooked, the paste will harden when the paste is cooled, but generally this is not a disadvantage, for it is generally used when first prepared. The paste should be used at the rate of eight gallons, which equals eight pounds of flour, to every hundred gallons of water, and has proved very effective against the red spider and some of the very delicate aphids. It may spot the leaves of chrysanthemums if used too near blossoming time. It has been found, however, to be effective on beans, hops, cucumbers, pumpkins, roses and violets, but has been found not to be effective upon greenhouse roses, greenhouse carnations or sweet peas in the field, in which cases it did not seem to spread well. The flour paste spray can be also used with nicotine sulphate and lime sulphur spray, in which cases it acts as a spreader.

This flour paste spray has been found to be particularly good, inasmuch as it spreads well over the foliage of the plants, apparently smothering the red spider. Later, when it has become quite dry, the film formed on the leaf cracks and partly scales off, leaving the leaf free to perform its functions. This spray is very cheap, costing about 18 cents per hundred gallons of the spray mixture.

Landscape Architecture, Harvard University, and Theodora Kimball, Librarian, School of Landscape Architecture, Harvard University. Cambridge, Mass., Harvard University Press, 1913. 103 pages; paper; price, \$1, postpaid." City planning has come to be widely recognized as of fundamental importance to the best development of our municipalities and to the health, efficiency and happiness of our citizens. This classification is the first comprehensive setting forth of the scope and varied character of this field. It aims to be useful either for the classification of collected material, for the indication of relations between special parts of the whole field, or for a comprehensive presentation and systematic analysis of the subject—alike to the municipal official, the business administrator, the civil engineer, the sanitary expert, the transportation engineer and others.

The Massachusetts Agricultural Experiment Station has just issued its fertilizer bulletin, No. 147. It contains the analysis of all fertilizers and lime compounds sold in the state during the year. Interesting data are given regarding the economy of purchasing high-grade fertilizers. A discussion is made of the quality of plant food found in the mixed goods as well as in the unmixed materials. The bulletin also contains the results of a field experiment to show the value of ground rocks as fertilizers. The bulletin will be sent to anyone upon request. Address communications to Director, Agricultural Experiment Station, Amherst, Mass.

ASKED AND ANSWERED

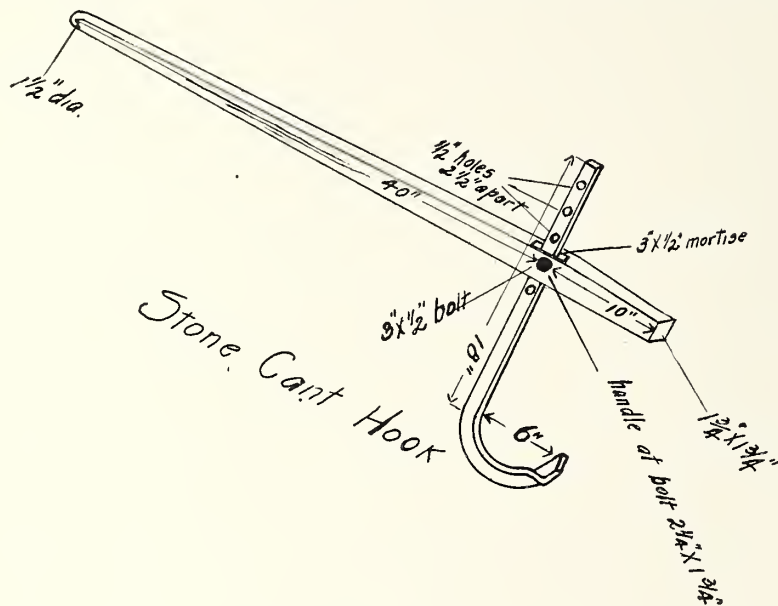
An exchange of experience on practical matters by our readers. You are invited to contribute questions and answers to this department

The Earth Cabinet.

Has there ever been any practical device made to hold the earth taken from the grave, same to be deposited in the grave after the body has been lowered?—S. B., Va.

ful. The plain wooden handle, unprotected, gives better satisfaction, as the wood, being softer than the stone, takes hold of it and sticks where the iron slipped.

The handle is made of tough white oak or white ash, from a stick $2\frac{1}{4} \times 1\frac{3}{4}$ inches,



Mr. Frank Eurich, superintendent of Woodlawn Cemetery, Detroit, Mich., invented a device called "Earth Cabinet," which we believe is just what you want. This was described in the July, 1911, issue of *PARK AND CEMETERY* in sufficient detail for you to be able to construct one for yourself. Any further details you might want, no doubt, Mr. Eurich would be glad to give you. We do not know whether this device is for sale or not, but the dealers in cemetery supplies advertising in this issue might supply you with something similar.

Cant Hook for Moving Stones.

Editor Asked and Answered: In your issue for March there was an article under the head of "Practical Tools for Forestry Work" in which a cant hook for moving heavy stones was described. Can you please send me the address of the man who manufactures the cant hooks, so that I may write him concerning the same?—A. A. F., Wis.

Harry J. Mueller, forester of the Union County Reserve, Route 2, Bellefonte, Pa., is the inventor of the device and gives us the following interesting description of it:

"This tool has never been put up for sale and I don't believe any other tools designed for use of our forest service have. About the stone hook, I would say it suggested itself to me while building a road over a rocky barrier where rocks weighing from one to twenty tons had to be dealt with. We first tried it with an iron plate under the lower part of the handle gripping the stone, but this proved unsuccessful.

50 inches long. Ten inches from one end and $\frac{3}{4}$ inch from the top side a $\frac{1}{2}$ -inch hole is bored. Now on the top side a $3 \times \frac{1}{2}$

inch mortise is made, the center of the hole being in the middle line of the mortise. The stick is then shaped to $1\frac{3}{4} \times 1\frac{3}{4}$ inches at the front to $1\frac{1}{2}$ inches in diameter at the handle end. At the mortise and 3 inches in front of the bolt the stick is left $2\frac{1}{4} \times 1\frac{3}{4}$ inches, giving it the greatest strength where the greatest strain is.

The hook is made from $1 \times \frac{1}{2}$ inch tool steel, of good quality, 27 inches long. Eighteen inches from one end a curve 6 inches in diameter is made. The end of the hook is then heated and placed in a vise. It is then twisted half around, making the broad bill of the hook stand at right angles with the rest of the hook. The bill should stand out slightly from the line of the semicircle, so that the inside edge of the bill and not the whole end of the steel bar comes in contact with the stone. This should be left soft; this is important, as soft steel catches the stone more readily and holds better. This edge should be sharpened repeatedly for good results.

Five $\frac{1}{2}$ -inch holes, $2\frac{1}{2}$ inches apart, are punched or drilled in the long end of the bar to make the hook adjustable to different sized stones.

The hook is then inserted in the mortise and held with a $3 \times \frac{1}{2}$ inch bolt and nut.

The handle can be made by a carpenter in a little time and any blacksmith can shape the hook.

This with the drawing tells the story."

MORE OR LESS PERSONAL.

R. A. Leavitt, superintendent of Wyoming Cemetery, Melrose, Mass., sends us two very fine photographic post-card views of the cemetery that show some really beautiful natural scenery that is portrayed to good advantage in these excellent little photographs.

William Pitkin, Jr., landscape architect, of Rochester, N. Y., has been retained to furnish plans for the development of a 21-acre addition to Mount Zion Cemetery at Pottstown, Pa.

At recent annual meetings of cemetery associations the following officers were elected:

Woodhull Cemetery Association, Woodhull, Ill.: President, G. E. Swanson; secretary-treasurer and sexton, O. A. Sherman.

Vinton Cemetery Association, Vinton, Ia.: Superintendent, Steven Jewett.

Charlotte Cemetery Association, Charlotte, Mich.: President, L. H. Shepard; secretary, George H. Spencer.

Oakland Cemetery Association, Clinton, Ia.: President, George Buechner; secretary, Gertrude M. Davis.

Fremont Cemetery Association, Fremont, Neb.: President, Charles F. Dodge; secretary, James Donahue.

Shiloh Cemetery Association, Barry, Ill.: President, A. W. Larimore; secretary, S. A. Baker.

Oakwood Cemetery Association, Fort Worth, Tex.: President, Mrs. J. J. Nunnally; secretary, Mrs. J. T. Burt.

Riverside Cemetery Association, Three Rivers, Mich.: President, John Griffiths; secretary, W. E. Barnard; superintendent, W. H. Sloan.

Le Mars Cemetery Association, Le Mars, Ia.: President, Caspar Huebsch; secretary, R. J. Koehler.

THE OBITUARY RECORD.

U. T. Dubel, aged 55, for twenty-one years superintendent of Woodlawn Cemetery, Canandaigua, N. Y., died at Memorial Hospital there, January 10, of shock following the loss of a portion of his jaw, which was pulled out when a dentist attempted to extract a troublesome tooth. Mr. Dubel had been ill with diabetes for six years and this disease had affected the

bone tissues. Mr. Dubel came from Dayton, Ohio, to take charge of the cemetery. He was master of Canandaigua Grange and prominently identified with the Odd Fellows and other organizations. Surviving are his wife and two children, Morris Dubel of Rochester and Glenna McMaster of Canandaigua, and nine brothers and sisters.

INSECT DAMAGE TO NATIONAL PARK TREES

By A. D. Hopkins, Expert in Charge of Forest Insect Investigations, Bureau of Entomology, U. S. Department of Agriculture.

The damage by insects to the living trees of the forests and ornamental grounds of the national parks consists of injuries to the foliage, branches, or the entire tree, which mar or destroy their attractive, educational and historic features and diminish or destroy their commercial value.

Throughout the forests of the Rocky Mountains and the Pacific slope, including the national parks, a large percentage of the timber has died during the past half century. The old standing and fallen dead trees, the red foliage of those that died last year, and the fading tops of those dying now bear evidences of the work of insects and are conspicuous examples of a great waste of forest resources. In some localities a few scattering trees die each year within a township or section; in others, clumps of trees, or whole forests, die within a single year.

The conifers, which are the predominating trees of the western part of the country, are subject to a high death rate from insect attack. The pines, the spruces, the Douglas fir, the balsam firs, the hemlock, the cedars and the Sequoias have one or more destructive enemies.

In the fall, spring and early summer the dying and recently dead trees are conspicuous on account of their fading, yellowish-red and reddish-brown foliage, as if injured by fire. When they are in large patches or extend over a considerable area their death is often attributed by the casual observer to forest fires.

The extent of the damage to the forests by insects through the accumulation of dead timber and the dying of matured trees over large areas is vastly greater than the general observer would suppose. In fact, the dead and fallen timber is so common in all forests that it has heretofore been recognized as a natural and inevitable condition. Large areas of insect-killed timber have been charged to fire without further thought or examination to determine the real cause. Fallen timber has been attributed to storms and scattering dead trees to old age.

During one recent year a reconnaissance was made of typical sections in one of the national forests, where there was no evidence that destructive forest fires had occurred during the past twenty years. It was found that the standing and fallen dead yellow pine that had died within that period amounted in board feet to nearly half as much as that which was then living, and of the sugar pine and Douglas fir there was one-fourth as much dead as was then living, and every dead tree examined in the estimate showed evidence that it had been killed by insects.

In the Black Hills National Forest of South Dakota over one-half of the timber

died within about ten years. In Oregon and Montana nearly all of the larger pine died within a few years on areas of a few hundred to 100,000 acres or more. These, together with many other examples of extensive dying of timber, have been investigated and found to be caused primarily by insects. These investigations have demonstrated beyond question that a vast amount of timber is killed by insects every year within the forested area of the Rocky Mountains and Pacific coast regions. Furthermore, the accumulation of this dead timber and fallen debris is a menace to the living, because they furnish fuel for destructive forest fires. The losses from insect depredations are thus augmented by fires.

The extent of damage to the forest and other trees of the national parks has not been estimated, and, with the exception of investigations conducted in the Yosemite and Glacier parks, we do not have much direct information as to the damage already done. It is plain to us, however, that the general conditions are not different from those which prevail throughout the regions in which the parks are located and in which the destructive species of insects are known to occur.

The amount of damage in the parks must be considered not only on the basis of the commercial value of the forest resources, but on that of the aesthetic and educational value of the virgin forest of typical examples of tree species. The loss of a section of the forest which forms the attractive feature in a landscape and is the only remaining example of the original type of forest growth of that region is far greater than that represented by the commercial value of the timber, as is also the loss of notable veterans and giants of the different species. These old forests and old trees are at present one of the attractive and instructive features of the timbered areas of some of the national parks, and if they are protected from their insect and other enemies they will be even more attractive features in coming centuries. Under present conditions these old trees of the virgin forest are in greater danger of being killed by insects than are the younger trees. Indeed, many of them have been killed within recent years.

The three giant sugar pines on the trail from Wawona to Glacier Point and the Yosemite Valley are examples. Two of them were dead and the other was dying when I saw them in June, 1904, and there was conclusive evidence that their death was caused by the mountain pine beetle. The veteran sugar pine known as "Uncle Tom" was being attacked at the same time by the same species of beetle, and I am informed that it died next year. The loss of these four giants of the species is irreparable.

The Sequoias are supposed to be immune from depredating insects, but they are not. They are more resistant than other species, and that is one reason they have lived so long. However, each species has a bark-beetle enemy which under favorable conditions is capable of killing the largest and finest specimens. I saw one of the large redwoods in the vicinity of Eureka, Cal., that had been killed by its bark-beetle enemy, and when in the Mariposa Grove in 1904 I discovered the bark-beetle enemy of the big tree in the living bark of a storm-broken limb.

The mere mention of the names of the thousands of species of insects, each of which causes some peculiar injury during the life of the different tree species, would occupy more time than is allotted for this paper. Therefore we must consider the more important of those which are directly responsible for the death of the trees.

The little genus of *Dendroctonus* beetles, or tree-killing beetles, is represented in the Rocky Mountain and Pacific slope regions by a few species which are more destructive to the conifers of western North America than all other forest insects combined. They are a constant menace to the pine, spruce and Douglas fir of the national parks. They are certain to be present in every park in which there are forests of their host trees, and have doubtless caused far greater damage than the park officials have realized.

The species, in the order of their destructiveness, are the mountain pine beetle, the western pine beetle, the Engelmann spruce beetle, the Jeffrey pine beetle, and the red turpentine beetle. All but the Jeffrey pine beetle of the Sierras are common to the northern Rocky Mountains and the Pacific slope. Those common to the central and southern Rocky Mountains are the Black Hills beetle, the Engelmann spruce beetle, the Douglas fir beetle, and the red turpentine beetle. There are three other species common to the southern Rocky Mountains and northern Mexico which are of less importance in causing the death of trees.

These insects are small, stout, black to reddish-brown beetles, ranging in length from about 2 to 9 millimeters, or 0.08 to 0.32 of an inch. They fly in the period from April to October and attack the main trunks of the living healthy trees by boring into the bark and excavating long winding or nearly straight egg galleries between the bark and the wood. In this manner they completely girdle and thus cause the death of their victim. As soon as the bark begins to die the eggs deposited by the beetles hatch, and the young grubs or larval forms complete the destruction of the inner bark. All of the broods develop into the adult stage within a year and emerge from

the bark to fly in search of new victims. Each species has its peculiar habits in the choice of host trees, method of attack and period of development.

The mountain pine beetle attacks the mountain or silver pine, sugar pine, western yellow pine, lodgepole pine, and evidently all other pines of the northern Rocky mountains and the Pacific slope. The adult beetles fly in the period from July to October, inclusive. When abundant they concentrate their attack on clumps and patches of trees. Their long, nearly straight egg galleries and radiating larval mines soon kill the bark on the main trunks, but the foliage of the infested trees remains green and apparently healthy until the following May and June. It then begins to change to a pale green and later to yellowish and brown. By the time all of the foliage is dead, about the 1st of July, the overwintered broods of beetles begin to emerge. By the middle of August most of them are out of the dead trees and have entered the living ones.

This is by far the most destructive insect enemy of the pine within its range, and under present conditions is a constant menace to the forests of matured or merchantable sized timber. It can be controlled by felling the infested trees and by removing the infested bark from the main trunks without burning the bark or tops. This work must be done during the period between the 1st of October and the 1st of July to destroy the broods of the beetle before they emerge. Whenever the timber can be utilized the product will pay all expenses. If it has no commercial value it will cost on an average 50 cents a tree for the required treatment. After an outbreak is under control the living timber can be easily protected from further depredations by giving prompt attention to the felling and barking of any clumps of dying trees found during May and June. Rangers or fire patrolmen can be instructed so that they can do this and anything else that is required to maintain control.

The western pine beetle attacks the western yellow pine, the sugar pine and the Jeffrey pine. The beetles fly in late June to October, inclusive, and usually attack scattering individual trees, often selecting the larger and older examples. The adults excavate winding egg galleries between the inner living bark and the wood and the larvae transform to the adult stage in the outer bark. The beetles begin to fly and attack the trees in June and continue the attack until October or November. The first generation develops and emerges in August to November, and the second generation passes the winter in the trees that are killed by it in the summer and fall.

The foliage of the infested trees begins to fade and turn yellow in a few weeks after the trees are attacked by this beetle. The summer broods of the first generation leave the trees by the time the foliage is reddish brown, but the overwintered broods

do not emerge until the following May and June, in some cases several months after the foliage is brown.

This species is next in importance to the mountain pine beetle as a destructive enemy of the pine, and the two species often combine in their attack. In this combined attack the western pine beetle is a secondary enemy of the trees because it follows the attack of the other species. When it is the primary enemy it is responsible for the death of a few scattering trees each year throughout the forest which results in the accumulation of dead timber. In the aggregate, this accumulative loss is very extensive, involving as it does the largest and best trees.

It can be controlled and the living timber protected from its ravages by felling the infested trees during the period between the 1st of October and the 1st of June and removing the bark from the main trunks and burning it. It is necessary to burn the bark, because the broods of this species transform in the outer bark. They are not destroyed by simply exposing the inner bark, as is the case with the mountain pine beetle.

The characteristic habits of the Jeffrey pine beetle are similar to those of the mountain pine beetle and therefore it requires the same treatment.

The Douglas fir beetle attacks the Douglas fir, the big-cone spruce and the western larch. The beetles fly in April and May and enter the living bark on healthy trees and on trees that have been injured by fire and those that have been recently felled. In habits of attack and general characteristics the Douglas fir beetle is similar to the mountain pine beetle, except that the former begins to fly earlier in the season and the foliage of the infested trees begins to die in the fall. It is very destructive to the Douglas fir throughout the Rocky Mountain region from British Columbia to Mexico, but is much less so on the Pacific slope and especially toward the coast. It can be controlled by felling the infested trees during the period between the 1st of September and the first to middle of the following April and removing the infested bark from the trunks without burning.

The red turpentine beetle is the largest species of the genus *Dendroctonus*. It begins to fly in April and is active until October and November. It attacks the pine and rarely the spruce, but as a rule confines its operation to the base or basal portion of the trunks. While its normal habit is to breed in the bark of stumps and logs of newly felled trees, it often infests the bark on healthy trees. It rarely kills a tree, but is the cause of a large percentage of the basal wounds known as "cat faces" and fire wounds, so commonly met with in the pine. This is a far more difficult species to control than the others because it breeds in the stumps of felled trees and the base of those killed by the other species or by fire. Valuable individual trees can

be protected by cutting the beetles out of the bark as soon as their presence is indicated by masses of exuding resin mixed with reddish boring dust.

Wherever there is continued lumbering operations, the red turpentine beetle confines its attack to the stumps, but in the national parks and private grounds, where a limited amount of timber is cut, or where the ravages of the mountain pine and western pine beetles have been controlled, it is likely to cause more or less extensive damage to the living timber for a year or two after.

In combating the other beetles in the national parks care should be taken to remove the bark from the stumps whenever they are found to be infested with this pest.

The Engelmann spruce beetle attacks the Engelmann spruce, blue spruce, and any other species of spruce found within its range, but does not attack the pine, Douglas fir or balsam fir. It flies in the period from June to August and attacks the bark of the main trunks of the older or matured trees. Its habits are similar to those of the mountain pine beetle, except that it flies earlier in the spring. When the trees begin to die the needles fade to a pale green and fall before they change to yellow or brown, but the bare twigs present a grayish brown appearance. The infested trees are easily located in the fall and early spring by the fallen needles and the bare twigs of the tops.

This species occurs from British Columbia to Mexico, and at times is very destructive to the Engelmann spruce forests. It can be controlled by felling the infested trees and removing the bark from the main trunks during the period beginning with the 1st of October and ending by the middle to last of May.

The Black Hills beetle is by far the most destructive insect enemy of the pine of the central and southern Rocky Mountains and the Black Hills of South Dakota. Its habits are similar to those of the mountain pine beetle, and the same methods are adopted for its control.

There are certain conditions in the administered as well as in the natural forests which contribute to the multiplication and destructive work of these *Dendroctonus* beetles. One of the most favorable conditions is an extensive forest of matured and old trees of pine or spruce, because in the beginning of an invasion such trees are more often the first to be attacked and killed. Trees in such a forest injured by lightning or storms often form centers of infestation, in which the beetles increase to sufficient numbers to enable them to kill a few trees, and then the invasion is started, year after year increasing in force until a large percentage or all of the timber is killed. They then attack the young trees, and often waste their energies on saplings, in which the broods fail to develop.

It is a common belief that severe droughts weaken the trees and thus con-

tribute to favorable conditions for the attack of the beetles. We have made pretty thorough investigations of this subject and are led to conclude that exceptionally dry seasons are more unfavorable for the development of the beetles than are moderately humid ones, and that, therefore, droughts do not contribute to their multiplication.

Forest fires contribute, to a limited extent, to the multiplication of certain species which breed in fire-scorched trees, but as a rule forest fires kill more beetles than they protect.

Commercial cutting of timber may contribute to the multiplication of certain species which breed in the stumps and tops, but if the cutting is continuous the insects confine their attack to the cut-over areas and do not invade the living timber. Sporadic summer cutting, however, is dangerous. The odor of the cut wood attracts the flying beetles to the locality. This contributes to their concentration, and when the cutting is stopped they invade the living timber.

(To be concluded.)

PARK NEWS.

A striking panoramic view, in six colors, of Crater Lake, National Park, is now for sale by the Superintendent of Documents for 25 cents. This view shows the park as it would appear to an observer flying over it, the ridges, peaks and valleys being shaded and colored in order to show the relief. This panorama measures 16½x18 inches and has a horizontal scale of one mile to the inch. Remittances for this publication should be by money order, payable to the Superintendent of Documents, Government Printing Office, Washington, D. C., or in cash. Checks and postage stamps cannot be accepted.

In the description of the Mount Royal College grounds in our November issue, by reason of a typographical error, it was stated that the college committee was to begin with an expenditure of \$1,000. The amount should have been \$1,000,000.

H. R. Francis, landscape engineer of the New York State College of Forestry at Syracuse, N. Y., recently made a survey in New York City in co-operation with the Tree-Planting Association, for the purpose of securing material which may be used to stimulate interest in more and better street trees. It is believed that the interest aroused will result in the formation of a definite and unified system of tree planting under the direction of a tree-planting bureau headed by trained foresters. For several years Dr. Stephen Smith, president of the Tree-Planting Association, has been working for better street planting in New York. Mr. Francis made a study of representative streets and taking photographs.

Salary increases were recently granted by the Milwaukee Park Board to its employees which will aggregate approximately \$3,000 a year. The maximum wage for custodians and boatmen was raised from \$2.25 to \$2.50 a day. The maximum monthly wage of the gardeners and the zoo laborers was raised from \$65 to \$70. Other park employees were granted increases as follows: Animal Keeper E. H. Bean, from \$135 to \$150 a month; Park Foreman Anton Ausmacher, from \$85 to \$95 a month,

and Park Foreman Theodore Gerlacht, from \$75 to \$80 a month.

New Parks and Improvements.

R. H. Tacke, superintendent of parks, Louisville, Ky., has completed his plans for the converting of the old Duncan place, which was recently purchased by the city, into a public park. Concrete walks and curbing will be laid, four tennis courts made and a children's playground arranged and a wire fence built.

The Park Board of Kansas City, Mo., has purchased what is known as the South Paseo extension and the Linwood Boulevard extension for the sum of \$407,500. Improvements will be made at once.

At a recent meeting of the Alton Park Commissioners, Alton, Ill., it was decided to build a wading pool for the children at Rock Spring Park, also a concrete band stand and shelter at Riverview Park.

J. S. Butterfield, landscape architect, is in charge of the work of constructing the twenty-acre park in Factoria addition, Little Rock, Ark.

From Annual Reports.

At the recent forty-second annual meeting of the Fairmount Park Association, of Philadelphia, the annual reports of President E. T. Stotesbury and Secretary Leslie W. Miller showed that the association now is an active factor in aiding in comprehensive planning for the improvement of the city in addition to its original purpose of aiding in erection of monuments and presentation to the city of works of art. The report tells of a scheme of statuary historical monuments on a greater scale than has ever yet been attempted in this city. The project is to be carried out under a munificent bequest of upward of \$500,000 in the will of Ellen Phillips Samuel. This bequest, which becomes available on the death of her husband, J. Bunford Samuel, the report said, is to be commenced by the latter at once, who has voluntarily offered to start the work of erecting the proposed memorials along the embankment of the East drive, between

Boat House row and Girard avenue bridge.

In his annual report Park Commissioner Dwight F. Davis, of St. Louis, recommends a provision of \$750,000 in the proposed general improvement bond issue for a South St. Louis park on the order of Fairground Park in North St. Louis. The proposed new park would afford recreation grounds, baseball diamond, tennis courts, football fields and swimming pool.

The annual report of the Park Commissioners of Buffalo, N. Y., records an expenditure for the year of \$335,757.36 for maintenance and improvements. Superintendent David A. Seymour reports that a number of pieces of land have been purchased by the city to be laid out for small parks, so that the total area of the park system has been increased by about 137 acres. Some extensive improvements in the way of building and landscape work have been completed. Something over \$6,000 has been received for rent of buildings on the grounds designated as Sperry Park and on the lake front property. Such collections will be used for the improvement of these pieces of property. An addition to the Casino at Delaware Park was completed during the year, in order that increased boating facilities on the park lake might be provided. The work was done by employees of the department at a saving of approximately \$1,700 over the lowest bid for the work. The concourse on "The Front," near the home of the Buffalo Yacht Club, was filled in with soil obtained free of cost by the department. The fifteen acres of land which were bought as an addition to this park will necessitate much improvement work in the way of grading and planting. John F. Cowell, director of the Botanic Garden, reports that the general collection of tropical and other plants under glass has been increased to some extent by collection and exchange and a few by purchase. The work of re-labeling these collections has been carried on as time and funds permitted. The collection of lilacs was strengthened by the placing of about one hundred varieties. One hundred and fifty more will be planted. When the group is completed by the use of plants now in the nursery the collection will embrace some six varieties, making it one of the largest in the world. George H. Selkirk is secretary of the board and Harry B. Filer city forester.

The annual report of Tower Grove Park, St. Louis, Mo., records total expenditures of \$29,466.93. The great use of the drives by heavy motor cars and the maintenance problem that such use brings induced the board to undertake the oiling of some of the principal roadways during the season. The drives most used received the first treatment in midsummer, followed by lighter oiling of the dried spots a little later, and a complete general covering in the fall. Freedom from dust, and consequent economy through lack of need for

sprinkling, of course resulted. In performing this work, much preliminary preparation was necessary, in shaping the crowns of the drives and in filling the low and worn places. The mixed gravel and detritus scraped from the surfaces was sifted and the finer part was used for top-dressing, with attendant economy. The cost of this work, which may well be regarded as applying in part to next year's maintenance, was \$1,301.96 for the 40,000 square yards of surface treated, or $3\frac{3}{4}$ cents a square yard. C. E. Hutchins is secretary of the board.

The annual report of the Park Commission of Atlanta, Ga., notes that the total value of park property for the year ending December 31, 1913, was \$2,062,643.55. The value of park property for the year ending December 31, 1912, was \$1,402,967.14,

an increase of \$659,676.41. The Park Department now consists of thirty-two parks with a total acreage of 839,835. This land was acquired by the city at a cost of \$186,674.74. Its present value is \$1,844,625. The park manager calls the Board's attention to the fact that the Park Department since 1909 has increased from eleven to thirty-two parks and from 343 to 840 acres. The Department of Parks has begun the permanent paving, guttering and draining of roads. In Grant Park and in Piedmont Park during 1913 was constructed about one mile of macadam roads, flanked on each side with concrete gutters two feet in width, with catch basins every two hundred or two hundred and fifty feet. W. P. Anderson is president of the Commission and Dan Carey secretary and general manager.

the general work of beautifying the cemetery. Edward Reichardt is sexton.

The Cemetery Committee of Joplin, Mo., has been authorized to purchase two acres as an addition to Fairview Cemetery.

Battle Creek, Mich., is to have a new cemetery within a year. Sixty acres have just been purchased and the work of improvement will begin early in spring. A power house will be erected, with the river as water supply. Emil Wicks is secretary.

Work on the new cemetery at South Bend, Ind., to be known as the Highland Cemetery, organized with \$100,000 capital, has begun. The cemetery is to occupy 114 acres and plans have been made by O. C. Simonds, of Chicago. Homer Miller, Fred Woodward, V. C. Hastings and C. Sedgwick are interested.

It is proposed to add thirteen acres to Elmwood Cemetery, Chanute, Kan. The City Council adopted resolution offered by Street Commissioner Johnson.

Oak Grove Cemetery, Jerseyville, Ill., presents a greatly improved appearance. The Cemetery Committee, composed of Alderman Atchison and Dr. E. L. H. Barry, have had the gravestones straightened, the trees trimmed and the fence repaired.

The City Commissioners of Huntington, W. Va., have decided to purchase the three-acre addition to Spring Hill Cemetery.

Milton Cemetery, East Alton, Ill., has been cleaned and improved under the supervision of B. F. Sikes, president of the Milton Cemetery Lot Owners' Association.

The Kewanee Cemetery Board, Kewanee, Ill., has established a perpetual care system. A. W. Everett, H. T. Lay and Theo. Cronau are the present members of the board.

The W. R. C. of Centralia, Ill., are endeavoring to raise money for the erection of a chapel in the City Cemetery.

From Annual Reports.

The annual report of Hamilton Cemetery, Hamilton, Ont., shows some substantial improvements accomplished the past season. The fact that \$25,000 was expended as against \$18,000 in 1912 is some indication of the extent of this work.

Commencing in February, cinders were hauled for the surfacing of the circle road in the north end of the cemetery, this road being completely covered before the spring opened, at a cost of about \$400. During the summer \$100 was expended on calcium chloride, which was applied to all the principal roads, preventing dust and hardening the surface, and the results obtained from this treatment are spoken of very highly. An addition to the office, 18 feet by 22 feet, was built and fully equipped at a cost of \$3,500. Following the custom established several years ago, the sections in front of the tool houses, comprising about $2\frac{1}{2}$ acres, were entirely regraded, the fences being removed and corner posts substituted, headstones and monuments straightened, shrubbery planted and the whole ground re-

CEMETERY NOTES

A. A. C. S. PROCEEDINGS.

To the members of the Association of American Cemetery Superintendents: The proceedings of the 1913 convention have been delayed owing to the fact that up to the present time I have been unable to get the stenographer to furnish the transcript of the proceedings. I hope to have these, however, in the near future and will rush the proceedings just as fast as possible.

Yours very truly,

BELLETT LAWSON, JR.,

Secretary-Treasurer.

"Beautiful Thornrose" is the title of a handsome illustrated book just issued by Thornrose Cemetery, Stanton, Va., that shows many beautiful views and gives historic facts and addresses and descriptive information about the cemetery.

The Riverside Cemetery Association, Albany, Ore., has recently started a movement to overhaul the old City Cemetery and give it a modern, park-like appearance. Superintendent B. Bartscher would like very much to secure post-card views of some of the modern cemeteries throughout the country, and if readers of PARK AND CEMETERY will favor Mr. Bartscher with souvenir cards or other views of their grounds he will appreciate it very much.

The Mount Hope Cemetery Association, Florence, S. C., inform us that they have made a selection of a caretaker. The credentials sent to A. A. Cohen by applicants will be returned.

Superintendent Alex Hanton of the Cemetery Department of Barre, Vt., has made extensive plans to entertain the New England Cemetery Association, if this organization accepts his invitation to come to Barre. The Barre Quarry Owners' Association, the Granite Manufacturers' Association and the Board of Trade are uniting in the in-

itation. The superintendents are asked to hold a two days' session—one day for the granite quarries, the scenery and a banquet at night; the second for the cemeteries and granite sheds. The visitors will be the guests of the Barre people during their stay and will be under no expense.

New Cemeteries and Improvements.

Judge D. W. Henry, of Jasonville, Ill., has purchased eight acres for an addition to the old Union Cemetery. This land is being improved for burial purposes. Former County Surveyor George R. Grimes is in charge of the work. Mr. Grimes is also superintending an addition of six acres to the old Newhinney Cemetery.

Valdosta Cemetery, Valdosta, Ga., has been greatly improved recently. More than 300 new lots have been added, from land bought from the city recently; two new entrances have been erected, and the work of parking will be continued. It is proposed to pave the main avenue through the cemetery and to put a good roadway of gravel and oil on some of the other drives. The work has been done almost entirely by Dr. Smith, head of the Cemetery Committee of the City Council.

Contract was made recently by R. R. Hoch, of Philadelphia, and the Rev. Messrs. E. J. Fisher and H. J. Callis by which \$30,000 was paid for Mount Forest Cemetery, near Thornton, Ill., for colored residents of Chicago.

An option has been taken on fifty-four acres of property east of Mishawaka, Ind., as a cemetery site.

The work of beautifying Oakland Cemetery, Little Rock, Ark., is progressing rapidly under the direction of W. W. Cummings, landscape gardener. The Board of Commissioners is spending a large amount of money on the streets and trees and in

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Kittanning Cemetery, Kittanning, Pa. Constructed with "Tarvia X".

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sodded. In addition to the road building, office addition and grading, many other smaller works of a special nature were attempted, although the planting of trees, shrubs and flowering plants should rank in importance with any. For planting material there was spent during the year over \$700; planting and care amounted to \$866. The combined amount of the several perpetual funds is \$104,350.

The eighty-second annual report of Mt. Auburn Cemetery, of Boston, is published as an interesting illustrated book of twenty-four pages, giving details of the year's operations. The routine business of the corporation has not varied materially from what it has been in former years. The receipts of the corporation, however, are somewhat less than usual, partially due, no doubt, to unsettled business conditions. The proceeds of the sale of lots amounted to \$12,822; of the disposal of crypts for cremated ashes, \$710, with \$330 additional for the perpetual care of the crypts. The details of the three funds held by the corporation are as follows: Perpetual Care Fund—Additions during the year, \$54,170.14; total amount January 1, 1914, \$1,873,157.38. Permanent Fund—Additions during the year, \$15,600.65; total amount January 1, 1914, \$605,323.92. General Fund—Additions during the year, \$1,605.42; total amount January 1, 1914, \$195,116. Some eight thousand dollars has been expended during the year in resurfacing the cemetery roadways and in drainage and other general improvements; \$2,214.45 was expended in providing an additional gate on each side of the main entrance to the cemetery sufficiently wide to admit automobiles and other vehicles. The change is one which has added greatly to the convenience of proprietors, particularly on days like Memorial Day, when the number of vehicles is large, and at the same time the architectural effect of the entrance has been enhanced, rather than diminished. The trustees are gratified to report that the last legislature passed an act releasing cemeteries which are not run for profit from taxation of their funds. This exemption is wide and just and absolutely necessary to enable garden cemeteries like Mt. Auburn to fulfill the purposes for which they were chartered and carry out the perpetual care contracts by which they are bound. In this report is inserted a picture of Dr. Jacob Bigelow, president of the corporation from 1845 to 1871. He was designer of the front gate, the tower and the old chapel, and also presented the sphinx to the corporation. He ranked among the ablest men of his day in New England.

The following facts and figures from W. H. Graves, superintendent of the Hudson City and Cedar Park cemeteries of Hudson, N. Y., give in condensed form the operations of the cemetery for the year 1913-1914. All of the income outside of 50

per cent from the sale of lots, which goes into the bond sinking fund, is applied to the maintenance and development of the grounds, whose condition is being improved yearly as rapidly as the funds permit. The total receipts were \$8,365.15; total expenditures, 1913-1914, \$8,128.36; total bonds outstanding, \$16,000; perpetual care fund, January, 1914, \$20,575; added to perpetual care fund this year, \$2,596; new water pipe laid, 1,200 linear feet; old avenues resurfaced with stone, 4,000 linear feet; foundations built, 75; cement walks and steps built, 500 linear feet; spent in regrading in the old section, \$522.18; trees set out, three-year transplants, white and Austrian pine and English oak, 1,600; tree inventory shows, exclusive of above, 1,500 trees; total number of interments, 255; vaults set, all kinds, 41; estimated number of burials to date, 35,000. One new section in Cedar Park is set aside for sale only with perpetual care at 75 cents a foot, including care.

BRITISH ASSOCIATION MEETS.

The United Kingdom Association of Cemetery Superintendents held a meeting January 13 at the Hammersmith Town Hall, with President J. D. Robertson in the chair.

The secretary submitted the names of twenty-five applicants for membership and they were duly elected.

The new Deaths Registration and Burials bill, and how it would effect cemetery superintendents, was discussed, and it was decided to bring the matter before a special meeting, to be held in February, for further consideration.

The first annual convention was arranged to be held in July at a place to be decided later.

J. D. Robertson, City of London Cemetery, is president of the association, and C. F. Tate, superintendent of Kensington Cemetery, Hanwell, London, W., is secretary.

The association has for its main objects: To provide an organization for cemetery superintendents, with a view to encourage and advance all matters connected with the administration of cemeteries; to provide facilities for discussion and interchange of opinions and ideas on matters appertaining thereto. All cemetery superintendents, assistant superintendents, curators, registrars and secretaries are eligible for membership.

HANDSOME CEMETERY ENTRANCE.

The new entrance to Woodland Cemetery, Indianapolis, shown on the cover of this issue, is a fine type of monumental entrance that has been carefully planned to secure an impressive, harmonious effect in both iron work and the architectural features.

The work includes two pair double entrance gates, 16 feet wide; two pair double walk gates, 7 feet wide, with radius panels on each side 7 feet high. The gates and all

lugs which fasten into the granite piers are made of bronze. The walk gates are of material to harmonize with the large drive gates. Each set of gates is provided with heavy bronze locks and brass handles.

The circular panels are 7 feet high and of the same material as used in the fence.

The relief shields shown in the center of each half of the drive gates are cast iron with monogram of Woodland Cemetery.

The fence includes 1,500 feet, to stand 7 feet high when set, made of 3/4-inch square pickets set diagonal 5 inches on centers, 1 1/2-inch points. The horizontal rails are 2x5/8 inches, Stewart's patent three-rib channel.

At the end of each panel is a 1-inch square line post with anchor plates provided with 3/4-inch round brace. These line posts extend 30 inches into the ground. In the center of each panel an adjustable center support was used, which gives the fence a bearing every 4 feet and prevents sagging.

This is practically the same design of iron fence which was furnished for Glendale Cemetery, Cincinnati, Ohio. This entrance and fencing was designed, built and erected by the Stewart Iron Works Co., of Cincinnati, Ohio.

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Wanted—1553 3½ inch cut-leaf Maples, Acer, Saccharinum Wieri. Trees must have well developed, symmetrical tops, straight stems and an extra fine root system. Address Board of Park Commissioners, Minneapolis, Minn.

Wanted—A cemetery sexton superintendent for new cemetery in a western state. Must be hard working, experienced nurseryman. Don't want a boss, but a man who will work himself. One who can also sell lots. This is no sinecure or public job, but a place for an experienced energetic, industrious man to make good. Give references and salary expected in first letter. Address W. L. C. Park and Cemetery.

Private party has money to invest in cemetery well located in large city. "J. J.", Park and Cemetery.

Experienced Cemetery Superintendent desires an offer in a larger field. Young, practical; can assume entire charge of office and grounds. Address "G" care Park and Cemetery.

Wanted—Foreman, Protestant, for a cemetery in a large Eastern city; a good sober, industrious man who understands handling of men, familiar with handling concrete and masonry work, can read maps and plans, understands grading, must not be afraid of work or hours; state wages expected and reference. Address "WCC" Park and Cemetery.

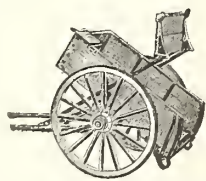
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Protects the Shade Trees from the ravages of San Jose Scale, Cottony Maple Scale, Oyster Shell Scale, Leaf Roller, Etc. Use it as a winter spray and save the trees. The best parks in the country use "Scalecide," and "Electro" spray materials.

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WHITE GLAZED Terra-Cotta GRAVE AND LOT MARKERS



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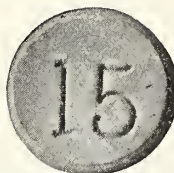
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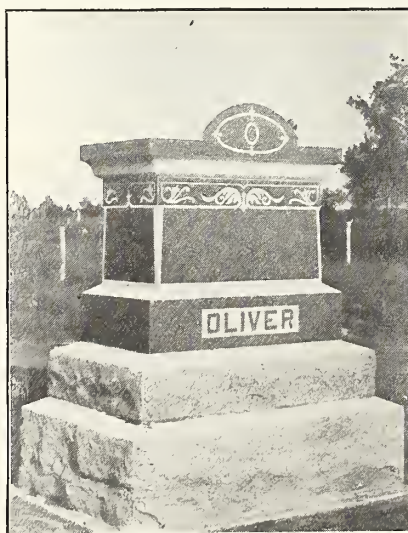
PORTLAND CEMENT GRAVE AND LOT MARKERS



Made under Haase Concrete Works, Pat. No. 680,432, and 734,854. Are nearly white and last like granite. Size and prices are, 8, 10, and 12-inch lengths, 3-in. diameter 5 to 7c, 3½-in. 7 to 10c, 4-in. 7½ to 12c, 5-in. 10½ to 17c. "PERPETUAL CARE" posts made in 5-inch diameter. Write for particulars and discount.

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for fall and winter business. This cut represents one of the jobs our agent at Norway, Michigan, sold last winter, the largest monument in the cemetery. He had a car of Red Granite for spring delivery.

You can do the same thing with a little effort. Write for our liberal terms. We want your help, and you can use the extra money you can make in this way.

Don't delay. This means dollars to you. Winter and spring is the best time to take orders.

Over 1,000 outfits sent out to date with a large per cent of them working.

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MORE than a million-and-a-quarter "PENNSYLVANIA" Quality Hand and Horse-Power Mowers have been sold in the past thirty-five years. They are to be found in every grass-growing country of the world.

☐ They are the only Mowers made in which all the blades are crucible tool steel, oil-hardened and water-tempered, and positively self-sharpening.

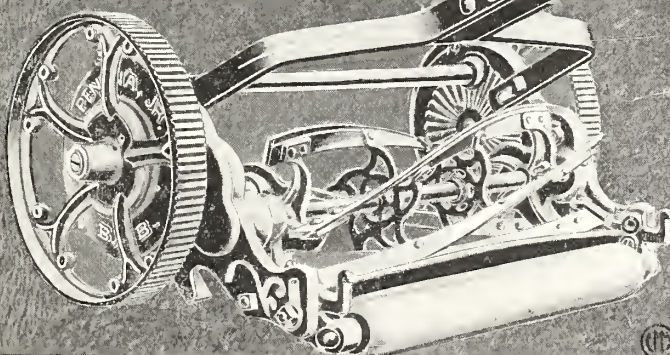
☐ These Mowers will cut more smoothly, push easier, require less expenditure for upkeep, and in every way are the most satisfactory to use.

FREE—"The Lawn, Its Making and Care,"
our instructive book mailed on request.

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Supplee-Biddle Hardware Company
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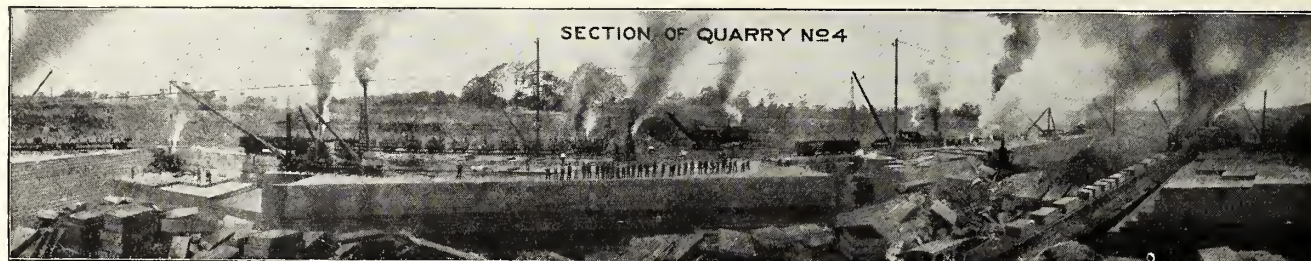
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as designed and built by us can be operated economically, expeditiously, and with entire absence of smoke. The building need have no features architecturally objectionable. We design, build, and equip crematories. Correspondence solicited.

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Send for Catalog to CEMENT MACHINERY CO., Jackson, Mich.
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strong nursery grown plants. \$3.00 per
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Save 50 Cents Per Cubic Yard Over Hand Work On Your Concrete Construction

The dividend possibilities of concrete improvements in parks and cemeteries are well recognized, but the modern facility and economy with which such improvements may be made are but slightly realized. The

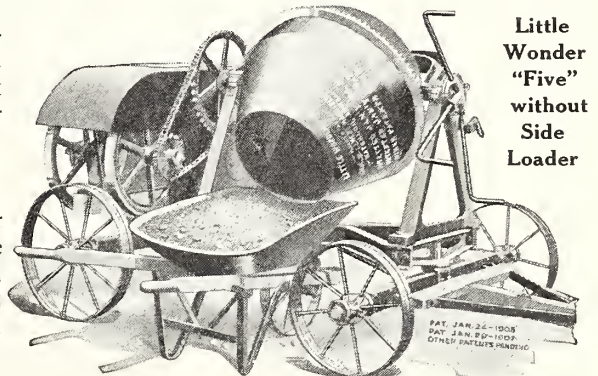
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is superior to all other machines for building mausoleums, foundations for monuments, bridges, peristyles, drives, curbs, walks, etc. It pays for itself in a short time by its economy over hand work and the better quality of the mix is alone sufficient argument for its adoption.

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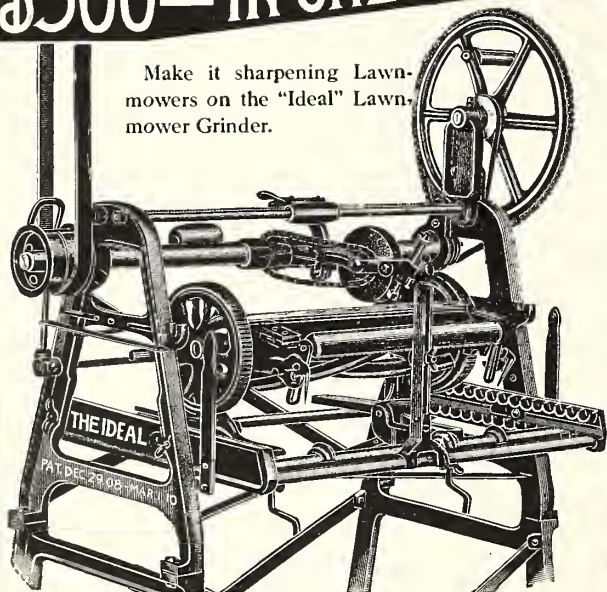
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Write us; we can be of service to you. We will submit designs, complete planting plans and furnish estimates for Parks, Cemeteries, Public or Private Grounds, no matter where located.

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"You Grind It As You Find It"

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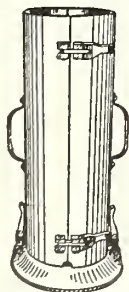


These markers are neat and tasty; also inexpensive, and being made of malleable

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PLEASE ASK FOR PRICES

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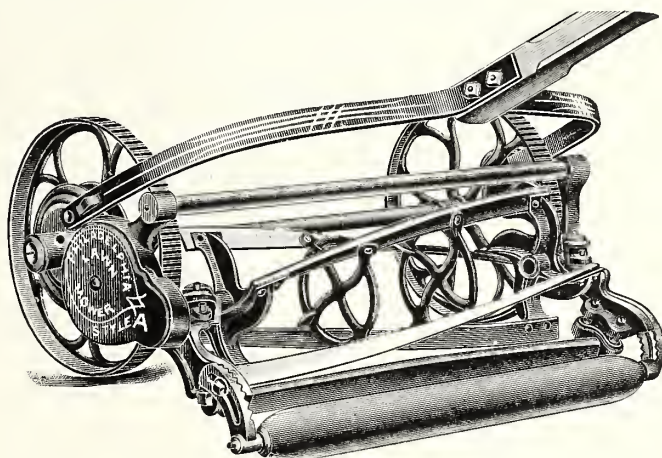
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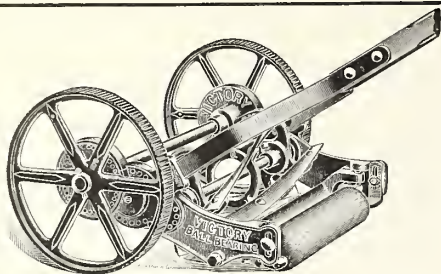
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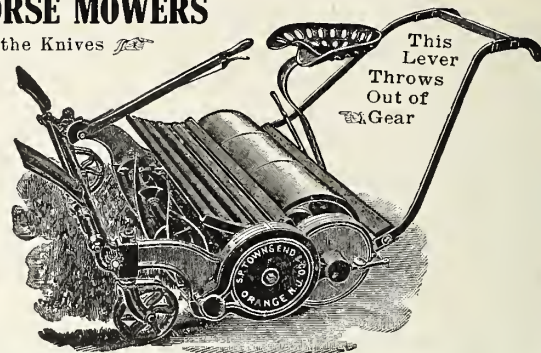
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This Lever Raises the Knives

All Our Hand Mowers
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A Positive and Effectual Remedy for the Treatment of Fruit
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will be mailed upon request.

We shall gladly give our time and attention to all
Park and Cemetery Superintendents visiting our Nur-
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submitted.

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WE WILL SAVE YOU MONEY ON YOUR
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QUALITY AND APPEARANCE THE BEST.

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Send us list of wants, we are always pleased to quote prices.
Complete price list on application.

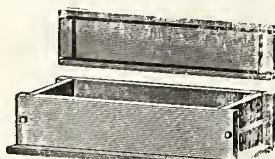
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Station A

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Perfect Park and Cemetery Lawns

don't grow by accident. They are the result of care—in the preparation of the soil and the selection of the seed. You can't plant ordinary grass seed and expect a perfect turf. The seed must be a mixture of grasses which will give permanent growth and produce a thick, close turf. If to this carefully tested mixture of high quality seed is added plant food, which goes into the ground with the seed, ready to stimulate its growth, a lawn of exceptionally sturdy growth and velvety texture is the result.



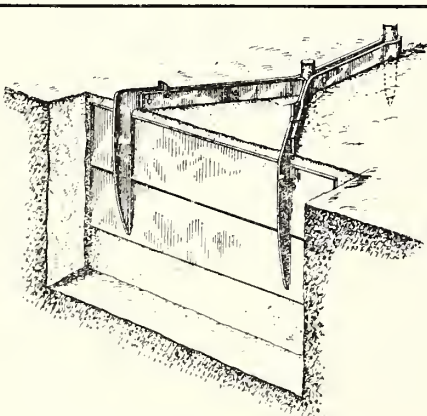
Fertilseed is the result of exhaustive tests with various natural and cultivated grasses, the mixture which was found to produce the finest and most vigorous lawn under all conditions. It is treated to insure quick germination and continued growth; and so certain are results that The Kalaka Co. makes the following unqualified guarantee:

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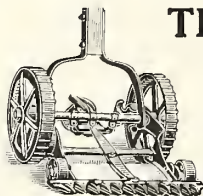
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THEY must be compact, both for transportation and the amount of space they occupy when placed over a grave, especially in length. Monuments and head stones often will not allow more than three inches at the ends of the grave, therefore the foot end of a lowering device should not be more than an inch thick, and the head end two inches thick.

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"Nothing has come out that I have not tried out to my entire satisfaction, and I know that nothing in the shape of a delicate and sensitive device for controlling the lowering of a dead weight will ever be a success, where every conceivable condition must be met.

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Let us tell you how to build a Receiving Vault and Chapel and make it pay. Write us; we want to be of service to you.

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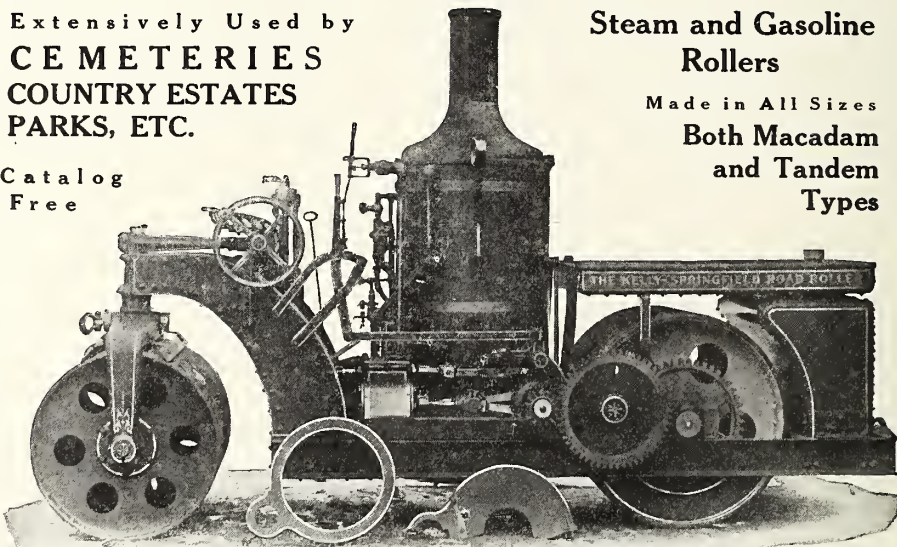
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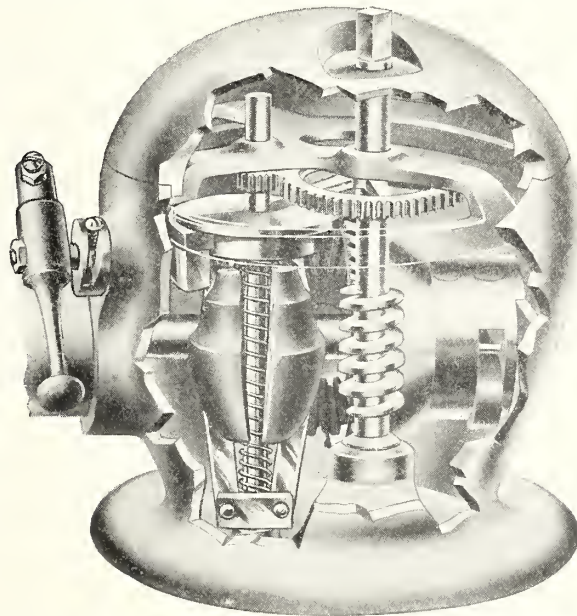
Expiration of lease demands the removal before May 1st, of thousands of fine Trees and Shrubs. Standard varieties; heavy and medium grades.

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These three—and the greatest of these is the Governor. They do the work—in the Simplest and Safest Device ever invented

“Safety First”



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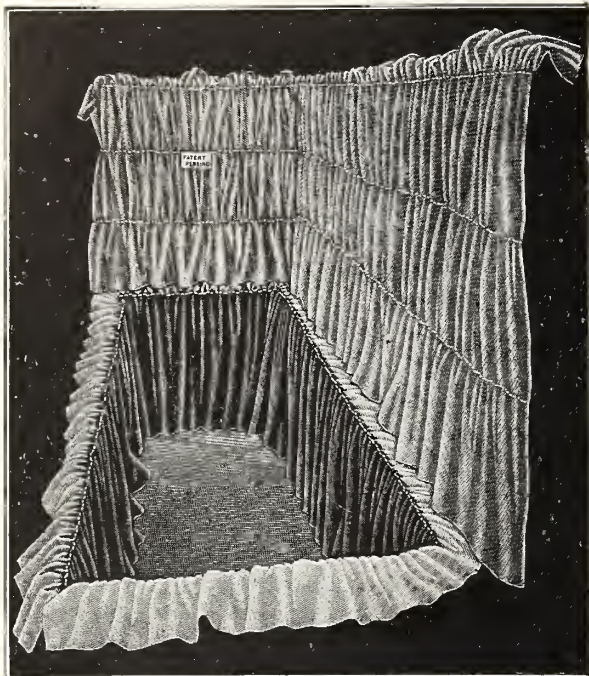
It costs you just one cent for a postal to get in touch with us. We may save you many a heartache and many a humiliation—send the postal now.

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colors and prices to suit everybody.

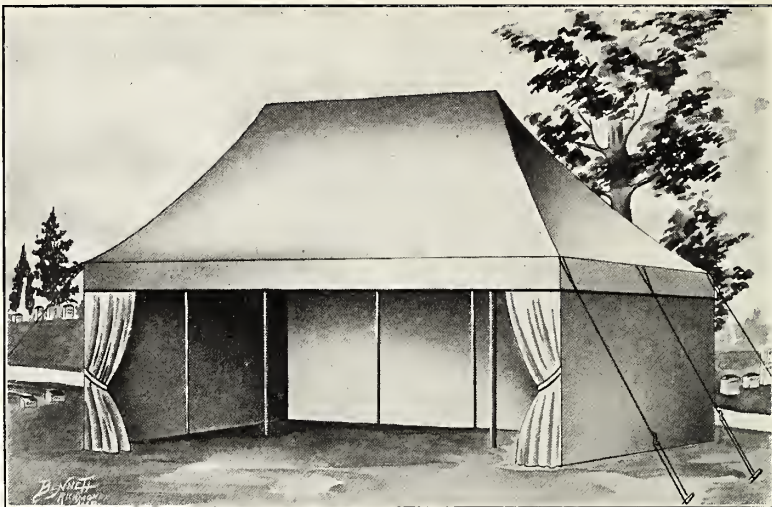
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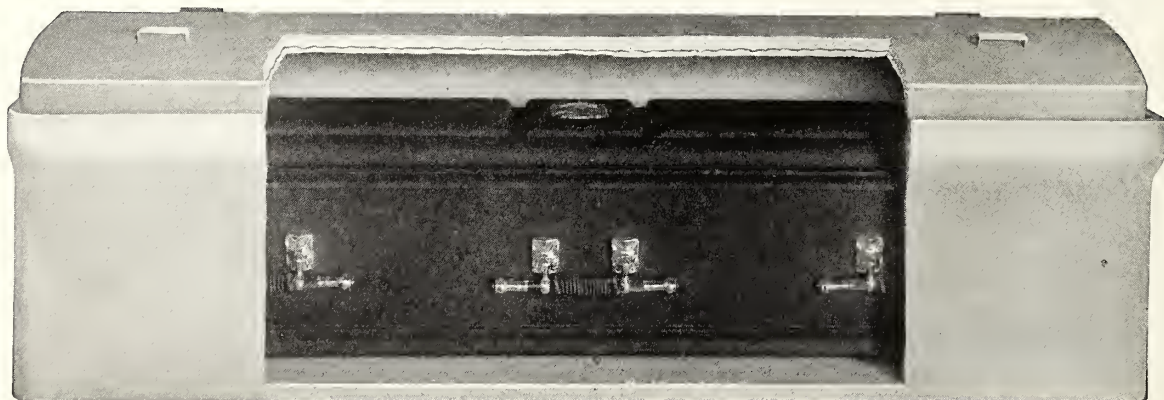


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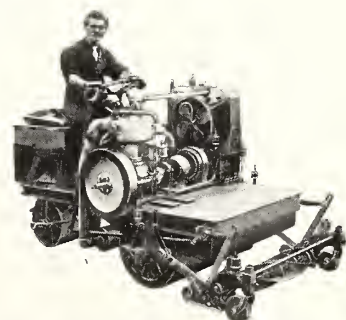
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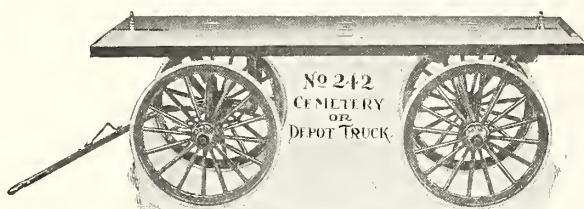
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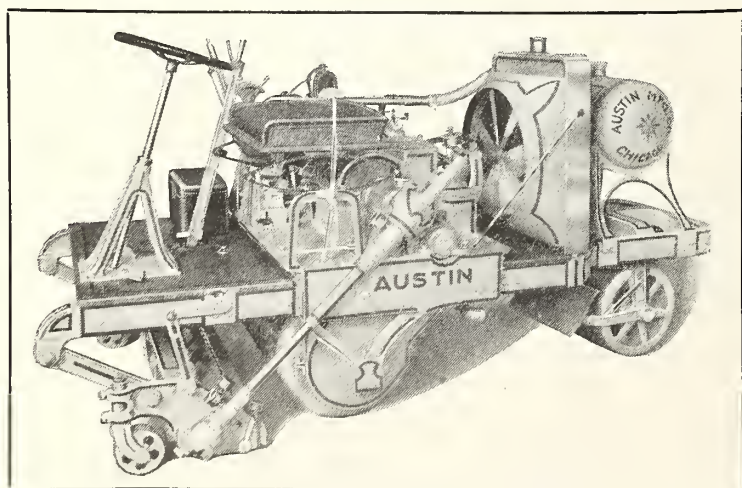
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